

**FINAL REPORT****SOUTHEASTERN OKLAHOMA  
WILDLIFE STUDY  
FEDERAL COAL RESERVE AREA****Submitted To:****UNITED STATES  
BUREAU OF LAND MANAGEMENT  
Albuquerque District Office****Volume II-Appendices****May 1980****Contract No. YA-512-CT8-224  
ESE Project No. 78-121**

**Prepared By:**  
**ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.**  
**St. Louis, Missouri**

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**APPENDIX A**  
**VEGETATION ANALYSIS DATA**

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)

Scientific Name†	Common Name	Habitat Type							
		Oak	Post Oak-	Bottomland	Hickory	Oak-Pine	Blackjack Oak	Roadsides	
<b>Equisetaceae</b>									
<b>Equisetales</b>									
<u><i>Equisetum</i> sp.</u>	Horsetail						X		
<b>Eufilicatales</b>									
<b>Polypodiaceae</b>									
<u><i>Adiantum pedatum</i></u>	Maidenhair fern					(X)			
<u><i>Cystopteris fragilis</i></u>	Fragile fern	X					X		
<u><i>Dryopteris marginalis</i></u>	Marginal shield-fern					(X)			
<u><i>Polystichum acrostichoides</i></u>	Christmas fern					(X)			
<b>Coniferae</b>									
<b>Pinaceae</b>									
<u><i>Juniperus virginiana</i></u>	Red cedar			X		X	X		
<u><i>Pinus echinata</i></u>	Shortleaf pine	(X)			X		(X)		
<u><i>Pinus taeda</i></u>	Loblolly pine					(X)			
<b>Graminiflorae</b>									
<b>Gramineae</b>									
<u><i>Agropyron smithii</i></u>	Western wheat grass	X							
<u><i>Agrostis hyemalis</i></u>	Hair grass	X							
<u><i>Agrostis perennans</i></u>	Upland bent grass	X							
<u><i>Andropogon gerardii</i></u>	Big bluestem			(X)	(X)		(X)		
<u><i>Andropogon scoparius</i></u>	Little bluestem			(X)	(X)	(X)	X		
<u><i>Andropogon ternarius</i></u>	Beard grass					(X)			
<u><i>Arundinaria gigantea</i></u>	Cane	X							
<u><i>Bouteloua curtipendula</i></u>	Tall grama grass					(X)			
<u><i>Bouteloua gracilis</i></u>	Mesquite grass					(X)			
<u><i>Bromus japonicus</i></u>	Japanese brome grass			(X)		(X)			
<u><i>Bromus purgans</i></u>	Brome grass	X							
<u><i>Bromus secalinus</i></u>	Brome grass			X					
<u><i>Bromus tectorum</i></u>	Brome grass						X		
<u><i>Cynodon dactylon</i></u>	Bermuda grass						X		
<u><i>Danthonia spicata</i></u>	Poverty grass			(X)	X	X			
<u><i>Echinochloa crusgalli</i></u>	Barnyard grass						X		
<u><i>Elymus virginicus</i></u>	Wild rye	X		(X)		(X)	X		
<u><i>Eragrostis spectabilis</i></u>	Tumble grass					(X)			
<u><i>Festuca octoflora</i></u>	Six-weeks fescue			(X)	X	X			
<u><i>Muhlenbergia</i> sp.</u>	Muhly						X		
<u><i>Muhlenbergia sobolifera</i></u>	Muhly			(X)	(X)				
<u><i>Leersia oryzoides</i></u>	Rice cutgrass	X							
<u><i>Panicum</i> sp.</u>	Panic grass	X		X			X		
<u><i>Panicum boscii</i></u>	Panic grass			(X)	(X)				
<u><i>Panicum depauperatum</i></u>	Panic grass						X		
<u><i>Panicum dichotomum</i></u>	Panic grass			X	X	X			
<u><i>Panicum linearifolium</i></u>	Panic grass			X	X	(X)			

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 2 of 12)

Scientific Name	Common Name	Habitat Type				
		Oak Bottomland	Hickory	Oak-Pine	Post Oak- Blackjack Oak	Roadsides
<b>Gramineae (Continued)</b>						
<u>Panicum oligosanthes</u>	Panic grass		(X)		(X)	
<u>Panicum sphaeroecarpon</u>	Panic grass		(X)	(X)	(X)	
<u>Panicum virgatum</u>	Switchgrass					X
<u>Paspalum</u> sp.	Bead grass					X
<u>Setaria faberii</u>	Foxtail					X
<u>Setaria lutescens</u>	Yellow foxtail					X
<u>Setaria viridis</u>	Green foxtail				(X)	X
<u>Sorghastrum nutans</u>	Indian grass		(X)		(X)	
<u>Sorghum halepense</u>	Johnson-grass					X
<u>Sphenopholis obtusata</u>	Wedge grass		(X)	(X)	(X)	
<u>Sporobolus</u> sp.	Rush grass	X		X		
<u>Sporobolus cryptandrus</u>	Sand drop-seed				(X)	X
<u>Triodia flava</u> ( <u>Tridens flavus</u> )	Tall red-top		(X)		(X)	X
<u>Triticum aestivum</u>	Wheat					X
<u>Uniola latifolia</u>	Wild oats		(X)			
<u>Uniola sessiliflora</u>	Spikegrass		(X)	(X)		
<b>Cyperaceae</b>						
<u>Carex</u> sp.	Sedge	X	X	X	X	
<u>Cyperus</u> sp.	Umbrella sedge				(X)	
<u>Cyperus ovularis</u>	Umbrella sedge		(X)	(X)	(X)	
<u>Cyperus strigosus</u>	Umbrella sedge	X				
<u>Scirpus</u> sp.	Nut grass				X	
<u>Scleria triglomerata</u>	Tall nut grass			X	X	
<b>Farinosae</b>						
<b>Commelinaceae</b>						
<u>Commelinia erecta</u>	Dayflower				(X)	
<u>Tradescantia</u> ozarkana	Spiderwort		X			
<b>Liliiflorae</b>						
<b>Juncaceae</b>						
<u>Juncus</u> sp.	Rush					X
<u>Juncus secundus</u>	Rush				X	
<u>Juncus tenuis</u>	Path rush	X				
<b>Liliaceae</b>						
<u>Polygonatum canaliculatum</u>	Solomon's seal			(X)		
<u>Allium vineale</u>	Field garlic	X				
<u>Smilax glauca</u>	Sawbrier	(X)	(X)			
<u>Smilax bona-nox</u>	Catbrier	X	X	X	X	X
<u>Smilax rotundifolia</u>	Catbrier	X	(X)	X	(X)	X

Continued

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 3 of 12)

Scientific Name†	Common Name	Habitat Type				
		Oak Bottomland	Hickory	Oak-Pine	Blackjack Oak	Roadsides
<b>Liliiflorae (Continued)</b>						
<i>Dioscoreaceae</i>						
<i>Dioscorea villosa</i>	Wild yam			X		
<i>Amaryllidaceae</i>						
<i>Agave virginica</i>	Rattlesnake master					X
<b>Salicales</b>						
<i>Salicaceae</i>						
<i>Populus deltoides</i>	Cottonwood		X			
<i>Salix caroliniana</i>	Ward's willow		(X)			
<i>Salix humilis</i>	Prairie willow					X
<i>Salax interior</i>	Sand bar willow		(X)			
<i>Salix nigra</i>	Black willow		(X)			
<b>Juglandales</b>						
<i>Juglandaceae</i>						
<i>Carya aquatica</i>	Water hickory	(X)				
<i>Carya cordiformis</i>	Bitternut	X		X	(X)	X
<i>Carya glabra</i>	Pignut hickory			X		
<i>Carya illinoense</i>	Pecan	X		(X)		
<i>Carya ovalis</i>	Sweet pignut			X		
<i>Carya ovata</i>	Shagbark hickory	X		(X)	(X)	
<i>Carya texana</i>	Black hickory	(X)		X		X
<i>Carya tomentosa</i>	Mockernut hickory	(X)		X	X	X
<i>Juglans nigra</i>	Black walnut	X	(X)			
<b>Fagales</b>						
<i>Corylaceae</i>						
<i>Alnus serrulata</i>	Common alder	(X)				
<i>Betula nigra</i>	Red birch	X				
<i>Carpinus caroliniana</i>	Blue beech	(X)		X		
<i>Ostrya virginiana</i>	Hop hornbeam	(X)	(X)			
<i>Fagaceae</i>						
<i>Castanea ozarkensis</i>	Ozark chestnut					(X)
<i>Quercus alba</i>	White oak	(X)		X		X
<i>Quercus bicolor</i>	Swamp white oak	X				
<i>Quercus falcata</i>	Spanish oak	X	(X)	(X)		X
<i>Quercus lyrata</i>	Overcup oak	X				
<i>Quercus macrocarpa</i>	Bur oak	(X)		X		X
<i>Quercus marilandica</i>	Blackjack oak		X		X	X
<i>Quercus muehlenbergii</i>	Yellow oak	(X)	(X)			(X)
<i>Quercus nigra</i>	Water oak	X				
<i>Quercus palustris</i>	Pin oak			X		(X)
<i>Quercus phellos</i>	Willow oak	X	(X)	(X)		

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 4 of 12)

Scientific Name†	Common Name	Habitat Type					
		Oak Bottomland	Hickory	Oak-Pine	Post Oak- Blackjack Oak	Roadsides	
<b>Fagales (Continued)</b>							
<b>Fagaceae (Continued)</b>							
<u>Quercus prinoides</u>	Chinquapin oak			X		(X)	
<u>Quercus rubra</u>	Red oak	X		X		X	
<u>Quercus shumardii</u>	Spotted oak	X	(X)	(X)		(X)	
<u>Quercus stellata</u>	Post oak	(X)	X	X		X	
<u>Quercus velutina</u>	Black oak	X	X	(X)		(X)	
<u>Quercus virginiana</u>	Live oak					X	
<b>Urticales</b>							
Ulmaceae							
<u>Celtis laevigata</u>	Hackberry		(X)			(X)	
<u>Celtis occidentalis</u>	C. hackberry	X		X		X	
<u>Ulmus alata</u>	Winged elm	X	X		X	X	
<u>Ulmus americana</u>	American elm	X		X		X	
<u>Ulmus rubra</u>	Slippery elm	X	X		(X)	X	
Moraceae							
<u>Maclura pomifera</u>	Osage orange	X		(X)		X	
<u>Morus rubra</u>	Red mulberry			X		(X)	
Urticaceae							
<u>Boehmeria cylindrica</u>	False nettle	X					
<u>Pilea pumila</u>	Clearweed	X					
<b>Polygonales</b>							
Polygonaceae							
<u>Polygonum</u> sp.	Smartweed		X		X	X	
<u>Polygonum tenue</u>	Knotweed					X	
<u>Polygonum virginianum</u>	Virginia knotweed		X				
<b>Centrospermae</b>							
Phytolaccaceae							
<u>Phytolacca americana</u>	Poke					X	
<b>Ranales</b>							
Ranunculaceae							
<u>Clematis</u> sp.	Virgin's bower		X				
<u>Clematis versicolor</u>	Leather flower	(X)		(X)			
<u>Ranunculus</u> sp.	Buttercup	X		X			
<u>Ranunculus septentrionalis</u>	Swamp buttercup	X		X			

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 5 of 12)

Scientific Name†	Common Name	Habitat Type				
		Bottomland	Oak	Post Oak-	Blackjack Oak	Roadsides
Hickory	Oak-Pine	Hickory	Oak-Pine	Blackjack Oak	Roadsides	
<b>Ranales (Continued)</b>						
Menispermaceae						
<u>Calycocarpum lyonii</u>	Cupseed		(X)	(X)		
<u>Cocculus carolinus</u>	Red-berried moonseed	X	X			(X)
<u>Menispermum canadense</u>	Moonseed	X	(X)			
Annonaceae						
<u>Asimina triloba</u>	Pawpaw		(X)	(X)		
Lauraceae						
<u>Lindera benzoin</u>	Spicebush		(X)	(X)	(X)	
<u>Sassafras albidum</u>	Sassafras	X				(X)
Rhoiales						
Cruciferae						
<u>Camelina microcarpa</u>	False flax			X		
<u>Lepidium</u> sp.	Peppergrass				(X)	X
Rosales						
Saxifragaceae						
<u>Hydrangea arborescens</u>	Wild hydrangea	(X)				
<u>Philadelphus pubescens</u>	Mock orange		(X)	(X)		
<u>Ribes</u> sp.	Gooseberry			(X)		
<u>Ribes cynosbati</u>	Prickly gooseberry		(X)			
Hamamelidaceae						
<u>Hamamelis vernalis</u>	Witch hazel		(X)	(X)		(X)
<u>Liquidambar styraciflua</u>	Sweet gum		(X)	(X)		
Platanaceae						
<u>Platanus occidentalis</u>	Sycamore	X				
Rosaceae						
<u>Agrimonias</u> sp.	Cocklebur					X
<u>Amelanchier arborea</u>	Juneberry		X	(X)		
<u>Crataegus</u> sp.	Hawthorn	X	X	X		X
<u>Crataegus crus-galli</u>	Cockspur thorn	X	X			
<u>Crataegus mollis</u>	Hawthorn				(X)	
<u>Crataegus spathulata</u>	Hawthorn	X	X			
<u>Geum vernum</u>	Spring avena	X				
<u>Gillenia stipulata</u>	Indian physic		X			
<u>Prunus americana</u>	Wild plum		X			
<u>Prunus serotina</u>	Black cherry	X	(X)			
<u>Rosa</u> sp.	Wild rose	X	X			X
<u>Rosa multiflora</u>	Multiflora rose					X
<u>Rosa setigera</u>	Climbing rose		(X)	(X)	(X)	

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 6 of 12)

Scientific Name†	Common Name	Habitat Type				
		Oak Bottomland	Hickory	Oak-Pine	Post Oak- Blackjack Oak	Roadsides
<b>Rosales (Continued)</b>						
Rosaceae						
<u>Rubus</u> sp.	Blackberry				(X)	X
Leguminosae						
<u>Acacia</u> <u>angustissima</u>	Prairie acacia			(X)	(X)	
<u>Amorpha</u> <u>fruticosa</u>	Indigo bush	X	X			
<u>Baptisia</u> <u>leucophaea</u>	False indigo		(X)		(X)	
<u>Cassia</u> sp.	Senna					X
<u>Cassia</u> <u>fasciculata</u>	Partridge pea					X
<u>Cassia</u> <u>nictitans</u>	Wild sensitive plant				(X)	
<u>Cercis</u> <u>canadensis</u>	Redbud	X	X		(X)	
<u>Clitoria</u> <u>marianna</u>	Butterfly pea		(X)	(X)	(X)	
<u>Desmodium</u> sp.	Tick trefoil		X	(X)	X	X
<u>Desmodium</u> <u>illinoense</u>	Tick trefoil		X		X	
<u>Desmodium</u> <u>laevigatum</u>	Tick trefoil			X	X	
<u>Desmodium</u> <u>paniculatum</u>	Tick trefoil		(X)	(X)	(X)	
<u>Gleditsia</u> <u>triacanthos</u>	Honey locust	X				X
<u>Lespedeza</u> sp.	Bush clover	X		X	(X)	X
<u>Lespedeza</u> <u>capitata</u>	Bush clover					X
<u>Lespedeza</u> <u>intermedia</u>	Bush clover					X
<u>Lespedeza</u> <u>procumbens</u>	Bush clover				(X)	
<u>Lespedeza</u> <u>repens</u>	Bush cover			(X)		
<u>Lespedeza</u> <u>stipulacea</u>	Korean clover					X
<u>Lespedeza</u> <u>striata</u>	Japanese clover			(X)		
<u>Lespedeza</u> <u>stuevei</u>	Bush clover		X			
<u>Psoralea</u> <u>canalicularum</u>	Scurf pea		(X)			
<u>Rhynchosia</u> <u>latifolia</u>	Broad-leaved lour		X	(X)	(X)	
<u>Robinia</u> <u>pseudo-acacia</u>	Black locust		(X)	(X)	(X)	
<u>Schrankia</u> <u>nuttallii</u>	Sensitive brier		(X)			
<u>Strophostyles</u> <u>helvola</u>	Trailing wild bean					X
<u>Stylosanthes</u> <u>biflora</u>	Pencil flower		(X)	(X)	(X)	
<u>Tephrosia</u> <u>virginiana</u>	Goat's rue		(X)	(X)	(X)	
<u>Trifolium</u> sp.	Clover	X				

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 7 of 12)

Scientific Name†	Common Name	Habitat Type				
		Oak Bottomland	Hickory	Oak-Pine	Post Oak- Blackjack Oak	Roadsides
<b>Geriales</b>						
Linaceae						
<u>Linum sulcatum</u>	Flax			(X)	(X)	
Oxalidaceae						
<u>Oxalis sp.</u>	Wood sorrel		X		X	X
Euphorbiaceae						
<u>Acalypha gracilens</u>	Three-seeded mercury			(X)		
<u>Croton capitatus</u>	Hogwort			(X)		(X)
<u>Croton texensis</u>	Skunkweed			X		
<u>Euphorbia sp.</u>	Spurge					X
<u>Euphorbia corollata</u>	Flowering spurge				(X)	
<u>Euphorbia maculata</u>	Nodding spurge					X
<u>Euphorbia supina</u>	Milk purslane					X
<b>Sapindales</b>						
Anacardiaceae						
<u>Rhus aromatica</u>	Aromatic sumac			X	X	X
<u>Rhus copallina</u>	Dwarf sumac			(X)	X	(X)
<u>Rhus glabra</u>	Smooth sumac			(X)		(X)
<u>Rhus radicans</u>	Poison ivy	X	X	X	X	X
Aquifoliaceae						
<u>Ilex decidua</u>	Possum haw		X	(X)	(X)	X
Celastraceae						
<u>Euonymus americanus</u>	Strawberry bush			(X)		
<u>Euonymus atropurpureus</u>	Wahoo			X		
Staphyleaceae						
<u>Staphylea trifolia</u>	Bladder nut			(X)	(X)	
Aceraceae						
<u>Acer negundo</u>	Box elder		X			
<u>Acer rubrum</u>	Red maple			(X)		
<u>Acer saccharinum</u>	Silver maple		(X)	(X)	(X)	
<u>Acer saccharum</u>	Sugar maple		(X)	(X)	(X)	
Hippocastanaceae						
<u>Aesculus glabra</u>	Ohio buckeye			(X)	(X)	
<b>Rhamnales</b>						
Rhamnaceae						
<u>Berchemia scandens</u>	Supple jack		(X)	(X)		
<u>Ceanothus ovarus</u>	Redroot		X	(X)		X
<u>Rhamnus caroliniana</u>	Carolina buckthorn			X		

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 8 of 12)

Scientific Name†	Common Name	Habitat Type				
		Bottomland	Oak	Post Oak-	Oak-Pine	Blackjack Oak
			Hickory		Roadsides	
<b>Rhamnales (Continued)</b>						
Vitaceae						
<u>Ampelopsis cordata</u>	Raccoon grape	(X)	X			X
<u>Cissus incisa</u>	Possum grape	(X)	(X)			
<u>Parthenocissus quinquefolia</u>	Virginia creeper	X	X	(X)		X
<u>Vitis sp.</u>	Grape		X	(X)		(X)
<u>Vitis acerifolia</u>	Bush grape	(X)	(X)			
<u>Vitis aestivalis</u>	Summer grape	(X)	X			X
<u>Vitis cinerea</u>	Winter grape	X	X			
<u>Vitis riparia</u>	River-bank grape		(X)			(X)
<u>Vitis rotundifolia</u>	Muscadine grape	(X)	(X)			
<u>Vitis vulpina</u>	Winter grape	(X)	(X)			
Tiliaceae						
<u>Tilia americana</u>	Basswood	(X)		(X)		(X)
<u>Tilia floridana</u>	Florida basswood		(X)			
<u>Tilia neglecta</u>	Baswood	(X)				
Verbenaceae						
<u>Callicarpa americana</u>	French mulberry	(X)				
Parietales						
Guttiferae						
<u>Ascyrum hypericoides</u>	St. Andrew's cross		(X)	X		X
<u>Hypericum drummondii</u>	Nits-and-lice			X		
<u>Hypericum punctatum</u>	St. John's wort			(X)		(X)
<u>Hypericum spathulatum</u>	Shrubby St. John's wort			(X)		(X)
Cistaceae						
<u>Lechea tenuifolia</u>	Pinweed					(X)
Violaceae						
<u>Viola sp.</u>	Violet			X		X
<u>Viola missouriensis</u>	Missouri violet	X	X			
<u>Viola pedata</u>	Pansy violet		(X)	(X)		
<u>Viola sagittata</u>	Arrow-leaved violet		X			X
Passifloraceae						
<u>Passiflora incarnata</u>	Passion flower					X
Opuniales						
Cactaceae						
<u>Opuntia sp.</u>	Prickly pear		(X)	(X)		(X)

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 9 of 12)

Scientific Name†	Common Name	Habitat Type				
		Bottomland	Hickory	Oak-Pine	Post Oak-Blackjack Oak	Roadsides
<b>Myrsinaceae</b>						
<i>Nyssa sylvatica</i>	Black gum		(X)	(X)		
<b>Umbelliflorae</b>						
<b>Umbelliferae</b>						
<i>Cynosciadium digitatum</i>	Finger dogshade	X				
<i>Daucus carota</i>	Wild carrot		X			
<i>Sanicula canadensis</i>	Black snakeroot	X	(X)			(X)
<i>Spermolepis echinata</i>				(X)		(X)
<b>Cornaceae</b>						
<i>Cornus drumondi</i>	Drummond's dogwood		X			(X)
<i>Cornus florida</i>	Flowering dogwood	X	(X)			
<i>Cornus obliqua</i>	Silky dogwood		(X)			
<b>Ericales</b>						
<b>Ericaceae</b>						
<i>Rhododendron roseum</i>	Pink azelia		(X)	(X)		
<i>Vaccinium arboreum</i>	Fuckleberry	X	X			(X)
<i>Vaccinium stamineum</i>	Deerberry	X	(X)			(X)
<i>Vaccinium vacillans</i>	Lowbush blueberry		(X)			X
<b>Ebanales</b>						
<b>Sapotaceae</b>						
<i>Bunelia lanuginosa</i>	False buckthorn		(X)	(X)		(X)
<b>Ebenaceae</b>						
<i>Diospyros virginiana</i>	Persimmon	(X)	(X)	(X)	(X)	X
<b>Styracaceae</b>						
<i>Halesia carolina</i>	Silverbell tree		(X)			
<b>Oleales</b>						
<b>Oleaceae</b>						
<i>Chionanthus virginica</i>	Fringe tree				(X)	
<i>Fraxinus americana</i>	White ash	(X)	X			X
<i>Fraxinus pensylvanica</i>	Red ash	X	X			
<b>Contortae</b>						
<b>Loganiaceae</b>						
<i>Spigelia marilandica</i>	Indian pink		X			

Continued

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 10 of 12)

Scientific Name†	Common Name	Habitat Type				
		Oak Bottomland	Hickory	Oak-Pine	Post Oak- Blackjack Oak	Roadsides
<b>Contortae (Continued)</b>						
Apocynaceae						
<u>Trachelospermum difforme</u>	Climbing dogbane		X			
Asclepiadaceae						
<u>Asclepias verticillata</u>	Milkweed			(X)	(X)	
<b>Tubiflorae</b>						
Convolvulaceae						
<u>Ipomoea</u> sp.	Morning glory					X
Polemoniaceae						
<u>Phlox pilosa</u>	Phlox		(X)	(X)		
Hydrophyllaceae						
<u>Phacelia strictiflora</u>	Phacelia		X			
Verbenaceae						
<u>Verbena</u> sp.	Vervain					X
Labiateae						
<u>Monarda fistulosa</u>	Wild bergamot	X	X		X	
<u>Scutellaria ovata</u>	Skullcap		(X)			
<u>Scutellaria parvula</u>	Skullcap				(X)	
Solanaceae						
<u>Physalis</u> sp.	Ground cherry	X	X			
<u>Solanum</u> sp.	Nightshade					X
<u>Solanum dulcamara</u>	Climbing nightshade	X				
Scrophulariaceae						
<u>Linaria canadensis</u>	Blue toadflax				X	X
<u>Penstemon</u> sp.	Beard-tongue				X	
<u>Verbascum thapsus</u>	Common mullein					X
Bignoniaceae						
<u>Campsis radicans</u>	Trumpet creeper	X	(X)			
<u>Catalpa bignonioides</u>	Common catalpa	X				X
Acanthaceae						
<u>Ruellia humilis</u>	Ruellia		(X)	(X)	(X)	
<b>Rubiales</b>						
Rubiaceae						
<u>Cephaelanthus occidentalis</u>	Buttonbush	X				X
<u>Diodia teres</u>	Rough buttonweed		X	X		X
<u>Galium</u> sp.	Rough bedstraw	X	X	X		
<u>Galium aparine</u>	Cleavers					X
<u>Galium pilosum</u>	Bed straw		(X)		(X)	

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in FCRA\*)  
(Continued, Page 11 of 12)

Scientific Name†	Common Name	Habitat Type				
		Bottomland	Oak	Hickory	Oak-Pine	Post Oak-Blackjack Oak
<b>Rubiaceae (Continued)</b>						
<i>Caprifoliaceae</i>						
<i>Lonicera</i> sp.	Bush honeysuckle	X		X		
<i>Lonicera flava</i>	Yellow honeysuckle			X		
<i>Lonicera sempervirens</i>	Trumpet honeysuckle	X				
<i>Symporicarpos orbiculatus</i>	Coralberry	X		(X)		(X)
<i>Viburnum prunifolium</i>	Black haw			(X)		
<i>Viburnum rufidulum</i>	Southern black haw	X				
<b>Campanulaceae</b>						
<i>Campanulaceae</i>						
<i>Specularia biflora</i>	Venus's looking-glass	X				
<b>Compositae</b>						
<i>Achillea</i> sp.	Common yarrow					
<i>Ambrosia artemisiifolia</i>	Common ragweed	X		X	(X)	X
<i>Ambrosia bidentata</i>	Ragweed					
<i>Ambrosia psilostachya</i>	Ragweed				(X)	
<i>Ambrosia trifida</i>	Great ragweed					
<i>Antennaria plantaginifolia</i>	Everlasting	X		X	X	
<i>Artemesia ludoviciana</i>	Western mugwort				(X)	
<i>Aster</i> sp.	Aster		(X)	(X)	(X)	
<i>Aster patens</i>	Aster		(X)	(X)	(X)	
<i>Cirsium</i> sp.	Thistle					
<i>Elephantopus carolinianus</i>	Elephant's foot	X				
<i>Erigeron</i> sp.	Fleabane			X	X	X
<i>Erigeron annuus</i>	Daisy fleabane					
<i>Erigeron strigosus</i>	Daisy fleabane		(X)	(X)	(X)	
<i>Helianthus</i> sp.	Sunflower	X	X			
<i>Hieracium</i> sp.	Rough hawkweed					
<i>Lactuca</i> sp.	Milkweed	X				
<i>Lactuca scariola</i>	Prickly lettuce	X		X		
<i>Liatris pycnostachya</i>	Button snakeroot					
<i>Rudbeckia</i> sp.	Coneflower					
<i>Rudbeckia hirta</i>	Black-eyed susan		(X)	(X)	(X)	X
<i>Silphium</i> sp.	Rosinweed		X		X	X
<i>Silphium laciniatum</i>	Rosinweed, compass-plant					
<i>Solidago</i> sp.	Goldenrod	X	X	X	X	X
<i>Tragopogon</i> sp.	Goat's-beard					

Table A-1. Occurrence of Plant Species in the Forest Habitats and Along Roadsides of the Southeastern Oklahoma FCRA (X = Species Sampled by ESE in Present Study; (X) = Additional Species Likely to Occur in PCRA\*)  
(Continued, Page 12 of 12)

Scientific Name†	Common Name	Habitat Type					
		Oak Bottomland	Hickory	Oak-Pine	Blackjack Oak	Roadsides	
Campanulatae (Continued)							
Compositae (Continued)							
<i>Verbesina</i> sp.	Crownbeard		X	X			
<i>Vernonia</i> sp.	Ironweed	X		X			
<i>Vernonia baldwini</i>	Ironweed			X		X	
<i>Xanthium</i> sp.	Cocklebur					X	

\* According to Blair and Hubbel (1938), Duck and Fletcher (1945), Rice and Penfound (1956), Taylor (1965), Kennedy (1973), and Means (1974).

† Taxonomy follows Fernald (1970).

Source: Environmental Science and Engineering, Inc., 1980.

Table A-2. Ecological Importance of Overstory Vegetation at Post Oak-Blackjack Oak Site PB-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus stellata</u>	.17	211	36.66	52.5	59.1	42.9	154.5
<u>Quercus marilandica</u>	.16	50	8.09	12.5	13.1	14.3	39.8
<u>Ulmus alata</u>	.11	50	5.33	12.5	8.6	14.3	35.4
<u>Carya texana</u>	.21	30	6.44	7.5	10.4	4.8	22.6
<u>Carya cordiformis</u>	.04	20	.82	5.0	1.3	9.5	15.6
<u>Carya tomentosa</u>	.12	20	2.34	5.0	3.8	4.8	13.5
<u>Maclura pomifera</u>	.15	10	1.54	2.5	2.5	4.8	9.8
<u>Celtis occidentalis</u>	.08	10	.76	2.5	1.2	4.8	8.5

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-3. Ecological Importance of Overstory Vegetation at Post Oak-Blackjack Oak Site PB-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus stellata</u>	.15	320	48.51	60.0	66.5	47.4	173.9
<u>Carya texana</u>	.11	93	10.35	17.5	14.2	21.1	52.8
<u>Quercus alba</u>	.11	27	3.03	5.0	4.2	10.5	19.7
<u>Fraxinus americana</u>	.03	27	0.81	5.0	1.1	5.3	11.4
<u>Quercus marilandica</u>	.41	13	5.46	2.5	7.5	5.3	15.3
<u>Quercus macrocarpa</u>	.24	13	3.26	2.5	4.5	5.3	12.2
<u>Crataegus</u> sp.	.04	13	0.55	2.5	0.8	5.3	8.5
<u>Ulmus alata</u>	.04	27	0.96	5.0	1.3	10.5	16.8

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-4. Ecological Importance of Overstory Vegetation at Post Oak-Blackjack Oak Site PB-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus stellata</u>	.25	210	51.63	42.5	46.8	28.6	117.8
<u>Carya texana</u>	.08	173	14.41	35.0	13.1	28.6	76.6
<u>Pinus echinata</u>	.71	37	26.49	7.5	24.0	14.3	45.8
<u>Juniperus virginiana</u>	.16	37	6.12	7.5	5.5	14.3	27.3
<u>Ulmus alata</u>	.19	25	4.70	5.0	4.3	9.5	18.8
<u>Quercus marilandica</u>	.57	12	7.07	2.5	6.4	4.8	13.7

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-5. Ecological Importance of Understory Vegetation at Post Oak-Blackjack Oak Site PB-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.0055	231	1.3	42.5	16.7	28.0	89.2
<u>Quercus stellata</u>	.0202	122	2.5	22.5	36.2	28.0	86.7
<u>Carya texana</u>	.0184	122	2.2	22.5	32.9	24.0	79.4
<u>Crataegus</u> sp.	.0453	14	0.6	2.5	9.0	4.0	15.5
<u>Maclura pomifera</u>	.0086	14	0.1	2.5	1.7	4.0	8.2
<u>Celtis occidentalis</u>	.0031	14	<0.1	2.5	0.6	4.0	7.1
<u>Quercus rubra</u>	.0021	14	<0.1	2.5	0.4	4.0	6.9
<u>Ilex decidua</u>	.0021	14	<0.1	2.5	0.4	4.0	6.9

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-6. Ecological Importance of Understory Vegetation at Post Oak-Blackjack Oak Site PB-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.0065	168	1.1	52.5	25.1	36.0	113.6
<u>Carya texana</u>	.0247	40	1.0	12.5	22.5	16.0	40.0
<u>Crataegus</u> sp.	.0597	16	1.0	5.0	21.8	8.0	34.8
<u>Fraxinus americana</u>	.0162	24	0.4	7.5	8.8	8.0	24.3
<u>Quercus stellata</u>	.0233	16	0.4	5.0	8.5	8.0	21.5
<u>Celtis occidentalis</u>	.0036	16	0.1	5.0	1.3	8.0	14.3
<u>Quercus alba</u>	.0415	8	0.3	2.5	7.6	4.0	14.1
<u>Ulmus americana</u>	.0104	3	0.1	2.5	1.9	4.0	8.4
<u>Quercus marilandica</u>	.0086	8	0.1	2.5	1.7	4.0	8.1
<u>Vitis aestivalis</u>	.0031	8	<0.1	2.5	0.6	4.0	7.1
<u>Quercus falcata</u>	.0021	8	<0.1	2.5	0.4	4.0	6.9

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-7. Ecological Importance of Understory Vegetation at Post Oak-Blackjack Oak Site PB-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Carya texana</u>	.0151	297	4.5	52.5	50.4	38.0	141.1
<u>Ulmus alata</u>	.0199	142	2.8	25.0	31.7	23.8	80.5
<u>Quercus stellata</u>	.0180	42	0.8	7.5	8.5	14.2	30.4
<u>Quercus marilandica</u>	.0092	56	0.5	10.0	5.9	14.3	30.1
<u>Pinus echinata</u>	.0193	14	0.3	2.5	3.1	4.8	10.3
<u>Rhus radicans</u>	.0021	14	<0.1	2.5	0.3	4.8	7.6

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-8. Percent Cover of Ground Level Vegetation at Post Oak-Blackjack  
Oak Site PB-1 in Coal County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Antennaria plantaginifolia</u>	1.62	3.0
<u>Danthonia spicata</u>	1.31	4.0
<u>Rhus aromatica</u>	1.14	3.0
<u>Quercus stellata</u>	1.02	
<u>Unidentified sedge</u>	0.97	8.0
<u>Ceanothus ovatus</u>	0.60	
<u>Diodia teres</u>	0.52	3.0
<u>Oxalis</u> sp.	0.44	1.0
<u>Quercus marilandica</u>	0.38	
<u>Lespedeza intermedia</u>	0.29	
<u>Polygonum temne</u>	0.28	2.0
<u>Polygonum</u> sp.	0.28	
<u>Aster</u> sp.	0.26	5.0
<u>Ascyrum hypericoides</u>	0.24	
<u>Viola</u> sp.	0.16	2.0
<u>Panicum depauperatum</u>	0.11	
<u>Scirpus</u> sp.	0.10	2.0
<u>Juncus secundus</u>	0.09	3.0
<u>Monarda fistulosa</u>	0.08	1.0
<u>Rhus radicans</u>	0.07	
<u>Festuca octoflora</u>	0.04	1.0
<u>Hieracium scabrum</u>		2.0
Misc. unidentified species		9.0
<u>Ulmus alata</u>		1.0
<u>Unidentified grass</u>		2.0
<u>Desmodium</u> sp.		1.0
<u>Penstemon</u> sp.		1.0
All Species	10.0	54.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-9. Percent Cover of Ground Level Vegetation at Post  
Oak-Blackjack Oak Site PB-2 in Latimer County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Ulmus alata</u>	5.04	3.0
<u>Rhus aromatica</u>	3.34	3.0
<u>Crataegus</u> sp.	1.52	
Unidentified grasses	1.26	
<u>Parthenocissus quinquefolia</u>	1.14	2.0
<u>Danthonia spicata</u>	0.80	
<u>Lonicera</u> sp.	0.52	1.0
<u>Solidago</u> sp.	0.32	
<u>Panicum depauperatum</u>	0.18	4.0
<u>Ranunculus</u> sp.	0.16	
<u>Scleria triglomerata</u>	0.16	1.0
<u>Quercus marilandica</u>	0.12	
<u>Q. virginica</u>	0.12	
<u>Antennaria plantaginifolia</u>	0.06	1.0
<u>Vaccinium vacillans</u>	0.04	
<u>Carex</u> sp.	0.03	
<u>Monarda fistulosa</u>	0.02	1.0
Misc. unidentified species		1.0
Unidentified sedges		4.0
<u>Desmodium laevigata</u>		2.0
<u>Linaria canadensis</u>		2.0
<hr/>		
All Species	14.8	25.0
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Source: Environmental Science and Engineering, Inc., 1980.

Table A-10. Percent Cover of Ground Level Vegetation at Post  
Oak-Blackjack Oak Site PB-3 in LeFlore County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Solidago</u> sp.	5.00	1.0
<u>Ancennaria plantiginifolia</u>	3.32	3.0
<u>Quercus stellata</u>	3.24	3.0
<u>Carya texana</u>	1.52	
<u>Quercus marilandica</u>	1.28	2.0
<u>Rhus radicans</u>	0.88	
Unidentified grasses	0.88	3.0
<u>Juniperus virginiana</u>	0.84	
<u>Carex</u> spp.	0.52	
<u>Desmodium illinoensis</u>	0.48	4.0
<u>Danthonia spicata</u>	0.41	6.0
<u>Silphium</u> sp.	0.36	2.0
<u>Parthenocissus quinquefolia</u>	0.32	
<u>Monarda fistulosa</u>	0.28	
<u>Ulmus alata</u>	0.28	
<u>Diodia teres</u>	0.20	1.0
<u>Erigeron</u> sp.	0.16	
Unidentified sedge	0.01	
<u>Viola sagittata</u>		1.0
All species	20.0	26.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-11. Ecological Importance of Overstory Vegetation at Oak-Pine Site OP-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus marilandica</u>	.07	286	20.7	55.0	27.2	41.7	123.8
<u>Quercus stellata</u>	.13	169	21.5	32.5	28.2	37.5	98.2
<u>Pinus echinata</u>	.68	52	35.4	10.0	46.4	16.7	73.1
<u>Carya texana</u>	.05	13	0.7	2.5	0.9	4.2	7.6

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-12. Ecological Importance of Overstory Vegetation at Oak-Pine Site OP-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Pinus echinata</u>	.19	223	42	45	51	36	133
<u>Quercus stellata</u>	.18	161	28	33	34	32	99
<u>Carya texana</u>	.16	62	10	13	12	18	43
<u>Quercus alba</u>	.03	25	<1	5	<1	4.6	10.5
<u>Ulmus alata</u>	.04	12	<1	2.5	.6	4.6	7.7
<u>Quercus marilandica</u>	.02	12	.26	2.5	.3	4.6	7.4

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-13. Ecological Importance of Overstory Vegetation at Oak-Pine Site 0P-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.12	141.7	16.9	45.0	45.6	23.1	113.7
<u>Pinus echinata</u>	.11	78.7	8.4	25.0	22.7	30.8	78.5
<u>Juniperus virginiana</u>	.23	23.6	5.3	7.5	14.4	11.5	33.4
<u>Quercus marilandica</u>	.08	23.6	1.9	7.5	5.1	11.5	24.1
<u>Quercus stellata</u>	.13	23.6	3.0	7.5	8.2	7.7	23.4
<u>Carya texana</u>	.06	23.6	1.5	7.5	4.1	11.5	23.1

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-14. Ecological Importance of Understory Vegetation at Oak-Pine Site OP-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Vaccinium arboreum</u>	.0047	508	2.4	27.5	11.6	28.6	67.7
<u>Quercus stellata</u>	.0166	416	6.9	22.5	33.9	28.6	85.0
<u>Quercus marilandica</u>	.0121	923	11.1	50.0	54.5	42.9	147.4

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-15. Ecological Importance of Understory Vegetation at Oak-Pine Site OP-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Pinus echinata</u>	.0181	334	6.0	35.0	47.5	27.3	109.8
<u>Ulmus alata</u>	.0070	334	2.3	35.0	18.2	31.8	85.1
<u>Quercus stellata</u>	.0146	96	1.4	10.0	11.0	9.1	30.6
<u>Quercus marilandica</u>	.0182	48	0.9	5.0	6.8	9.1	20.9
<u>Rhus coppalina</u>	.0031	24	0.1	2.5	0.6	4.5	7.6
<u>Carya texana</u>	.0021	24	0.1	2.5	0.4	4.5	7.4

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-16. Ecological Importance of Understory Vegetation at Oak-Pine Site OP-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.0152	317	4.8	37.5	50.8	29.6	117.9
<u>Juniperus virginiana</u>	.0068	233	1.6	27.5	16.6	22.2	66.4
<u>Quercus stellata</u>	.0124	85	1.1	10.1	11.0	11.1	32.1
<u>Carya texana</u>	.0182	64	1.2	7.5	12.1	11.1	30.7
<u>Quercus marilandica</u>	.0066	64	0.4	7.5	4.4	11.1	23.0
<u>Pinus echinata</u>	.0064	42	0.3	5.0	2.8	7.4	15.2
<u>Vaccinium arboreum</u>	.0069	21	0.2	2.5	1.5	3.7	7.7
<u>Quercus palustris</u>	.0031	21	0.1	2.5	0.7	3.7	6.9

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-17. Percent Cover of Ground Level Vegetation at Oak-Pine  
Site OP-1 in Coal County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Vaccinium arboreum</u>	4.40	5.0
<u>Panicum linearifolium</u>	0.77	
<u>Danthonia spicata</u>	0.76	5.0
Unidentified grasses	0.76	
<u>Quercus marilandica</u>	0.73	
<u>Rhus aromatica</u>	0.44	
<u>Desmodium laevigata</u>	0.36	
<u>Monarda fistulosa</u>	0.28	
<u>Erigeron</u> sp.	0.22	
<u>Diodia teres</u>	0.14	1.0
<u>Oxalis</u> sp.	0.09	
<u>Ascryum hypericoides</u>	0.08	
<u>Viola</u> sp.	0.08	
Misc. unidentified species	0.04	
<u>Croton texensis</u>	0.04	
<u>Quercus stellata</u>		1.0
<u>Solidago</u> sp.		1.0
<u>Antennaria plantiginifolia</u>		1.0
All species	9.2	14.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-18. Percent Cover of Ground Level Vegetation at Oak-Pine Site OP-2 in Latimer County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Crataegus</u> sp.	5.60	
<u>Rhus radicans</u>	3.16	2.0
<u>Ulmus alata</u>	3.12	1.0
<u>Pinus echinata</u>	2.96	1.0
<u>Carya tomentosa</u>	2.80	
<u>Quercus marilandica</u>	2.68	
<u>Juniperus virginiana</u>	1.40	2.0
<u>Lespedeza</u> sp.	1.36	
Unidentified grasses	0.66	2.0
<u>Desmodium leavigatum</u>	0.28	1.0
<u>Carex</u> sp.	0.17	
<u>Sporobolus</u> sp.	0.10	
<u>Antennaria plantaginifolia</u>	0.08	
<u>Diodia teres</u>	0.08	
<u>Scleria triglomerata</u>	0.04	1.0
Misc. unidentified species		3.0
Unidentified sedge		4.0
<u>Polygonum</u> sp.		1.0
<u>Solidago</u> sp.		1.0
All species	24.5	19.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-19. Percent Cover of Ground Level Vegetation at Oak-Pine  
Site OP-3 in LeFlore County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Juniperus virginiana</u>	5.00	1.0
<u>Ulmus alata</u>	1.60	
<u>Cystopteris fragilis</u>	1.04	
<u>Rhus aromatica</u>	0.96	8.0
<u>Carex</u> sp.	0.69	3.0
<u>Physalis</u> sp.	0.52	
<u>Danthonia spicata</u>	0.50	6.0
<u>Smilax bona-nox</u>	0.40	
Misc. unidentified species	0.38	1.0
<u>Ambrosia artemisifolia</u>	0.36	
<u>Antennaria plantiginifolia</u>	0.33	
<u>Galium</u> sp.	0.28	
<u>Physalis virginiana</u>	0.20	
<u>Oxalis</u> sp.	0.16	
Unidentified grasses	0.16	
<u>Scutellaria ovata</u>	0.12	
<u>Quercus stellata</u>	0.08	
<u>Desmodium</u> sp.	0.02	
<u>Monarda fistulosa</u>		2.0
<u>Hypericum drummondii</u>		1.0
<u>Festuca octoflora</u>		2.0
All species	12.6	24.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-20. Ecological Importance of Overstory Vegetation at Oak-Hickory Site OH-1 in Pittsburg County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus alba</u>	.61	103	62.9	27.5	69.2	27.7	123.9
<u>Quercus marilandica</u>	.15	75	11.0	20.0	12.1	15.2	47.3
<u>Carya texana</u>	.11	56	6.0	15.0	6.5	12.1	33.6
<u>Carya cordiformis</u>	.13	37	5.0	10.0	5.5	12.1	27.5
<u>Quercus rubra</u>	.07	19	1.3	5.0	1.5	6.1	12.5
<u>Ulmus alata</u>	.05	19	1.0	5.0	1.1	6.1	12.2
<u>Quercus stellata</u>	.05	19	0.9	5.0	1.0	6.1	12.0
<u>Ulmus americana</u>	.03	19	0.5	5.0	0.5	6.0	11.6
<u>Fraxinus americana</u>	.12	9	1.1	2.5	1.3	3.0	6.8
<u>Crataegus spathulata</u>	.10	9	1.0	2.5	1.1	3.0	6.6
<u>Crataegus crus-galli</u>	.04	9	0.4	2.5	0.4	3.0	6.0

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-21. Ecological Importance of Overstory Vegetation at Oak-Hickory Site OH-2 in Haskell County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus marilandica</u>	.26	180	46.9	42.5	57.4	29.6	129.5
<u>Quercus stellata</u>	.10	116	11.08	27.5	13.6	25.9	67.0
<u>Ulmus alata</u>	.08	63	5.00	15.0	6.1	18.5	39.6
<u>Carya tomentosa</u>	.39	32	12.24	7.5	15.0	14.8	37.3
<u>Ulmus americana</u>	.10	11	1.08	2.5	1.3	3.7	7.5
<u>Fraxinus pennsylvanica</u>	.08	11	.89	2.5	1.1	3.7	7.3
<u>Carya texana</u>	.04	11	.44	2.5	0.5	3.7	6.7

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-22. Ecological Importance of Overstory Vegetation at Oak-Hickory Site OH-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus alba</u>	.43	139	59.9	30.0	48.4	26.9	105.3
<u>Quercus rubra</u>	.27	162	43.3	35.0	35.0	30.8	100.8
<u>Carya tomentosa</u>	.05	35	1.7	7.5	1.4	11.5	20.4
<u>Quercus velutina</u>	.31	35	10.8	7.5	8.8	3.9	20.1
<u>Quercus stellata</u>	.12	35	4.2	7.5	3.4	7.7	18.6
<u>Carya texana</u>	.03	23	0.7	5.0	0.6	7.7	13.3
<u>Amelanchier arborea</u>	.08	23	2.0	5.0	1.6	7.7	14.3
<u>Quercus prinoides</u>	.10	11	1.2	2.5	1.0	3.9	7.3

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-23. Ecological Importance of Understory Vegetation at Oak-Hickory Site OH-1 in Pittsburg County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.0043	176	0.8	25.0	13.6	23.3	61.9
<u>Carya texana</u>	.0096	141	1.3	20.0	24.0	16.7	60.8
<u>Quercus alba</u>	.0095	123	1.2	17.5	20.8	16.7	55.0
<u>Quercus marilandica</u>	.0093	123	1.1	17.5	20.3	13.3	51.2
<u>Quercus stellata</u>	.0105	35	0.4	5.0	6.6	6.7	18.2
<u>Vitis aestivalis</u>	.0083	35	0.3	5.0	5.2	6.7	16.9
<u>Juniperus virginiana</u>	.0123	18	0.2	2.5	3.9	3.3	9.7
<u>Cornus drummondii</u>	.0069	18	0.1	2.5	2.2	3.3	8.0
<u>Quercus macrocarpa</u>	.0055	18	0.1	2.5	1.7	3.3	8.0
<u>Ulmus americana</u>	.0055	18	0.1	2.5	1.7	3.3	8.0

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-24. Ecological Importance of Understory Vegetation at Oak-Hickory Site OH-2 in Haskell County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Quercus marilandica</u>	.0183	145	2.7	27.5	32.4	20.7	80.6
<u>Ulmus alata</u>	.0151	106	1.6	20.0	19.4	20.7	60.1
<u>Quercus stellata</u>	.0285	79	2.3	15.0	27.5	13.8	56.3
<u>Carya texana</u>	.0074	40	0.3	7.5	3.6	10.3	21.4
<u>Fraxinus americana</u>	.0031	40	0.1	7.5	1.5	10.3	19.4
<u>Carya tomentosa</u>	.0031	40	0.1	7.5	1.5	6.9	15.9
<u>Vaccinium arboreum</u>	.0169	26	0.5	5.0	5.4	3.4	13.9
<u>Fraxinus pennsylvanica</u>	.0378	13	0.5	2.5	6.1	3.4	12.1
<u>Morus rubra</u>	.0104	13	0.1	2.5	1.7	3.4	7.6
<u>Rhamnus caroliniana</u>	.0031	13	<0.1	2.5	0.5	3.4	6.4
<u>Ampelopsis cordata</u>	.0021	13	<0.1	2.5	0.3	3.4	6.3

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-25. Ecological Importance of Understory Vegetation at Oak-Hickory Site OH-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Carya tomentosa</u>	.0143	352	5.1	27.5	24.8	17.2	69.6
<u>Quercus alba</u>	.0279	160	4.5	12.5	21.9	17.2	51.7
<u>Quercus rubra</u>	.0064	288	2.4	22.5	11.9	17.2	51.7
<u>Carya texana</u>	.0137	192	2.6	15.0	12.9	20.7	48.6
<u>Quercus stellata</u>	.0389	96	3.7	7.5	18.4	6.9	32.8
<u>Anemone arborea</u>	.0079	64	0.5	5.0	2.5	6.9	14.4
<u>Quercus prinoides</u>	.0278	32	0.9	2.5	4.4	3.4	10.3
<u>Carya ovalis</u>	.0123	32	0.4	2.5	1.9	3.4	7.9
<u>Quercus velutina</u>	.0042	32	0.1	2.5	0.7	3.4	6.6
<u>Carya glabra</u>	.0031	32	0.1	2.5	0.5	3.4	6.4

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-26. Percent Cover of Ground Level Vegetation at Oak-Hickory Site OH-1 in Pittsburg County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Lonicera</u> sp.	4.08	2.0
<u>Viola missouriensis</u>	3.38	
<u>Rhus aromatica</u>	3.20	15.0
<u>Vitis cinerea</u>	2.60	
<u>Carex</u> spp.	2.08	3.0
<u>Quercus stellata</u>	1.40	3.0
<u>Parthenocissus quinquefolia</u>	1.38	7.0
Misc. unidentified species	0.98	
<u>Cocculus</u> sp.	0.94	
<u>Monarda fistulosa</u>	0.89	2.0
<u>Ulmus alata</u>	0.84	
<u>Ulmus rubra</u>	0.82	2.0
<u>Daucus carota</u>	0.80	
<u>Vernonia</u> sp.	0.76	
<u>Fraxinus</u> sp.	0.64	
<u>Quercus marilandica</u>	0.56	1.0
<u>Carpinus caroliniana</u>	0.52	
<u>Carya texana</u>	0.48	
<u>Ranunculus septentrionalis</u>	0.46	
<u>Panicum</u> sp.	0.44	
<u>Verbesina</u> sp.	0.32	
<u>Carya glabra</u>	0.24	1.0
<u>Celtis occidentalis</u>	0.24	
<u>Lespedeza stuevii</u>	0.16	
<u>Lactuca scariola</u>	0.12	
<u>Rosa</u> sp.	0.08	
<u>Solidago</u> sp.	0.08	
Unidentified sedge	0.06	
<u>Rhynchosia latifolia</u>	0.05	
<u>Galium</u> sp.	0.03	
All species	28.6	36.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-27. Percent Cover of Ground Level Vegetation at Oak-Hickory Site OH-2 in Haskell County

Species	Percent Ground Cover		
	Line	Intercept	Point Frequency
<u>Schrankia nuttallii</u>		2.16	1.0
<u>Quercus stellata</u>		1.36	
<u>Ulmus alata</u>		1.20	1.0
Unidentified grasses		1.07	5.0
<u>Rhus radicans</u>		0.84	
<u>Vitis</u> sp.		0.80	
<u>Parthenocissus quinquefolia</u>		0.72	3.0
<u>Quercus marilandica</u>		0.72	
<u>Carex</u> spp.		0.68	2.0
<u>Carya texana</u>		0.40	
<u>Antennaria plantiginifolia</u>		0.24	3.0
<u>Diodia teres</u>		0.20	
<u>Camelina macrocarpa</u>		0.16	
<u>Viola sagittata</u>		0.16	
<u>Euonymus atropurpureus</u>		0.12	
<u>Quercus velutina</u>		0.12	
<u>Rhynchosia latifolia</u>		0.12	
<u>Silphium</u> sp.		0.12	
<u>Desmodium illinoensis</u>		0.08	
<u>Physalis</u> sp.		0.08	
<u>Desmodium</u> sp.		0.04	
<u>Lespedeza</u> sp.		0.04	
Unidentified sedge		0.04	
All species		11.5	15.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-28. Percent Cover of Ground Level Vegetation at Oak-Hickory Site OH-3 in LeFlore County

Species	Percent Ground Cover		
	Line	Intercept	Point Frequency
<u>Rhus aromatic</u> a	8.92		
<u>Quercus alba</u>	2.68		
<u>Helianthus</u> sp.	2.64		
<u>Quercus rubra</u>	2.12		2.0
<u>Carya tomentosa</u>	2.08		
<u>Solidago</u> sp.	1.88		2.0
<u>Monarda fistulosa</u>	1.68		
<u>Carex</u> sp.	1.52		
Misc. unidentified species	1.04		1.0
<u>Dioscorea quaternata</u>	0.56		
<u>Parthenocissus quinquefolia</u>	0.52		
<u>Tradescantia</u> ozarkana	0.52		1.0
<u>Bromus secalinus</u>	0.44		
<u>Prunus americana</u>	0.44		
<u>Dioscorea villosa</u>	0.40		
<u>Amorpha fruticosa</u>	0.36		
<u>Ceanothus ovatus</u>	0.28		
<u>Viola sagittata</u>	0.20		6.0
<u>Galium</u> sp.	0.12		
<u>Crataegus</u> sp.	0.08		
<u>Lonicera</u> flava			4.0
<u>Helianthus</u> sp.			5.0
<u>Gillenia stipulata</u>			3.0
<u>Ranunculus</u> sp.			1.0
<u>Rosa</u> sp.			1.0
<u>Vaccinium stamineum</u>			1.0
Unidentified sedge			1.0
All species	28.5		29.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-29. Ecological Importance of Overstory Vegetation at Bottomland Site B-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Carya cordiformis</u>	.14	214	30.9	35.0	23.9	20.0	78.9
<u>Fraxinus pennsylvanica</u>	.34	61	20.7	10.0	16.0	8.0	34.0
<u>Ulmus americana</u>	.59	31	17.9	5.0	13.8	8.0	26.8
<u>Maclura pomifera</u>	.03	46	1.4	7.5	1.0	8.0	16.6
<u>Ulmus rubra</u>	.02	46	0.9	7.5	0.7	8.0	16.2
<u>Gleditsia triacanthos</u>	.08	31	2.5	5.0	1.9	8.0	14.9
<u>Juglans nigra</u>	.66	15	10.1	2.5	7.8	4.0	14.3
<u>Populus deltoides</u>	.20	31	6.0	5.0	4.6	4.0	13.6
<u>Betula nigra</u>	.53	15	8.1	2.5	6.2	4.0	12.7
<u>Quercus nigra</u>	.53	15	8.1	2.5	6.2	4.0	12.7
<u>Crataegus</u> sp.	.11	31	3.4	5.0	2.6	4.0	11.6
<u>Platanus occidentalis</u>	.39	15	6.0	2.5	4.6	4.0	11.1
<u>Quercus rubra</u>	.14	15	2.2	2.5	1.7	4.0	8.2
<u>Ilex decidua</u>	.03	15	0.4	2.5	0.3	4.0	6.8
<u>Prunus serotina</u>	.02	15	0.3	2.5	0.2	4.0	6.7

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-30. Ecological Importance of Overstory Vegetation at Bottomland Site B-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Fraxinus pennsylvanica</u>	.38	92	35.0	30.0	33.2	26.9	80.2
<u>Celtis occidentalis</u>	.22	99	21.8	32.5	20.7	26.9	80.2
<u>Ulmus rubra</u>	.53	61	32.1	20.0	30.5	23.1	73.5
<u>Carya illinoensis</u>	.17	23	3.85	7.5	3.7	7.7	18.9
<u>Ulmus americana</u>	.30	15	4.6	5.0	4.4	7.7	17.1
<u>Quercus rubra</u>	.66	8	5.1	2.5	4.8	3.9	11.2
<u>Sassafras albidum</u>	.37	8	2.8	2.5	2.7	3.9	9.1

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-31. Ecological Importance of Overstory Vegetation at Bottomland Site B-3 in LeFlore County<sup>A</sup>

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value <sup>†</sup>
<u>Ulmus alata</u>	.45	191	86.0	72.5	89.8	58.8	221.1
<u>Fraxinus pennsylvanica</u>	1.59	13	21.0	5.0	21.9	5.9	32.8
<u>Celtis occidentalis</u>	0.07	26	1.9	10.0	1.9	17.7	29.6
<u>Gleditsia triacanthos</u>	0.06	13	0.8	5.0	0.9	5.9	11.7
<u>Ilex decidua</u>	0.27	7	1.8	2.5	1.9	5.9	10.3
<u>Maclura pomifera</u>	0.02	7	0.1	2.5	0.2	5.9	8.5

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-32. Ecological Importance of Understory Vegetation at Bottomland Site B-1 in Coal County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus alata</u>	.0122	93	1.1	22.5	23.1	20.0	65.6
<u>Viburnum rufidulum</u>	.0104	93	1.0	22.5	19.8	20.0	62.3
<u>Celtis occidentalis</u>	.0206	41	0.9	16.0	17.5	10.0	37.5
<u>Carya cordiformis</u>	.0141	52	0.7	12.5	14.9	10.0	37.4
<u>Fraxinus pennsylvanica</u>	.0081	41	0.3	10.0	6.9	10.0	26.9
<u>Maclura pomifera</u>	.0193	10	0.2	2.5	4.1	3.3	9.9
<u>Gleditsia triacanthos</u>	.0145	10	0.2	2.5	3.1	3.3	8.9
<u>Ulmus rubra</u>	.0145	10	0.2	2.5	3.1	3.3	8.9
<u>Prunus serotina</u>	.0123	10	0.1	2.5	2.6	3.3	8.4
<u>Ulmus americana</u>	.0086	10	0.1	2.5	1.8	3.3	7.6
<u>Carya illinoensis</u>	.0069	10	0.1	2.5	1.5	3.3	7.3
<u>Crataegus crus-galli</u>	.0031	10	<0.1	2.5	0.7	3.3	6.5
<u>Crataegus spathulata</u>	.0031	10	<0.1	2.5	0.7	3.3	6.5
<u>Cornus florida</u>	.0021	10	<0.1	2.5	0.5	3.3	6.3

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-33. Ecological Importance of Understory Vegetation at Bottomland Site B-2 in Latimer County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Ulmus rubra</u>	.0321	19	0.6	17.5	34.9	23.3	75.7
<u>Celtis occidentalis</u>	.0141	22	0.3	20.0	17.5	16.6	54.2
<u>Fraxinus pennsylvanica</u>	.0177	14	0.2	12.5	13.8	13.3	40.0
<u>Parthenocissus quinquefolia</u>	.0082	11	0.1	10.0	5.1	10.0	25.1
<u>Vitis cinerea</u>	.0134	14	0.2	12.5	10.4	0.7	23.6
<u>Ulmus americana</u>	.0166	6	0.1	5.0	5.2	6.7	16.8
<u>Quercus falcata</u>	.0032	6	<0.1	5.0	1.0	6.7	12.7
<u>Cercis canadensis</u>	.0278	3	<0.1	2.5	4.3	3.3	10.1
<u>Catalpa bignonioides</u>	.0168	3	0.1	2.5	2.6	3.3	8.4
<u>Ilex decidua</u>	.0123	3	<0.1	2.5	1.9	3.3	7.8
<u>Carya illinoensis</u>	.0055	3	<0.1	2.5	0.9	3.3	6.7
<u>Acer negundo</u>	.0031	3	<0.1	2.5	0.5	3.3	6.3

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-34. Ecological Importance of Understory Vegetation at Bottomland Site B-3 in LeFlore County\*

Species	Mean Basal Area/Plant (ft <sup>2</sup> )	Number of Plants/Acre	Basal Area/Acre (ft <sup>2</sup> )	Relative Density	Relative Dominance	Relative Frequency	Importance Value†
<u>Fraxinus pennsylvanica</u>	.01	467	6.0	70.0	79.8	50.0	199.8
<u>Celtis occidentalis</u>	.01	83	0.8	12.5	10.3	20.0	42.8
<u>Quercus phellos</u>	.01	50	0.5	7.5	7.1	10.0	24.6
<u>Ilex decidua</u>	.0042	17	<0.1	2.5	0.9	5.0	8.4
<u>Maclura pomifera</u>	.0031	17	0.1	2.5	0.7	5.0	8.2
<u>Quercus shumardii</u>	.0031	17	0.1	2.5	0.7	5.0	8.2
<u>Gleditsia triacanthos</u>	.0021	17	<0.1	2.5	0.5	5.0	8.0

\* See Mueller-Dombois and Ellenberg (1974) for a detailed discussion of calculations.

† Importance Value is the sum of Relative Density, Dominance, and Frequency.

Source: Environmental Science and Engineering, Inc., 1980.

Table A-35. Percent Cover of Ground Level Vegetation at Bottomland Site B-1 in Coal County

Species	Percent Ground Cover		
	Line	Intercept	Point Frequency
<u>Carex</u> spp.	8.70		43.0
<u>Arundanaria gigantea</u>	6.84		2.0
<u>Symporicarpos orbiculatus</u>	3.90		
<u>Smilax rotundifolia</u>	2.32		
Unidentified sedge	2.00		
Misc. unidentified species	1.90		5.0
Unidentified grasses	1.80		8.0
<u>Leersia oryzoides</u>	1.76		
<u>Campsis radicans</u>	1.04		
<u>Rhus radicans</u>	0.66		
<u>Solidago</u> sp.	0.54		
<u>Cocculus caroliniana</u>	0.48		
<u>Helianthus</u> sp.	0.44		2.0
<u>Parthenocissus quinquefolia</u>	0.36		1.0
<u>Smilax bona-nox</u>	0.36		3.0
<u>Juncus tenuis</u>	0.30		
<u>Viola missouriensis</u>	0.24		
<u>Quercus lyrata</u>	0.22		10.0
<u>Lespedeza</u> sp.	0.16		
<u>Ranunculus</u> sp.	0.14		
<u>Lonicera</u> sp.	0.12		
<u>Trifolium</u> sp.	0.12		
<u>Ulmus rubra</u>	0.12		
<u>Allium vineale</u>	0.03		
<u>Agrostis perrans</u>			1.0
<u>Cephalanthus occidentalis</u>			1.0
<u>Elymus virginicus</u>			1.0
<u>Smilax rotundifolia</u>			1.0
All species	34.6		81.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-36. Percent Cover of Ground Level Vegetation at Bottomland Site B-2 in Latimer County

Species	Percent Ground Cover		
	Line	Intercept	Point Frequency
<u>Carex</u> spp.	8.66		43.0
<u>Lonicera</u> sp.	8.28		2.0
<u>Arundanaria gigantea</u>	7.22		
<u>Sanicula canadensis</u>	5.22		10.0
<u>Symporicarpos orbiculatus</u>	3.32		2.0
Misc. unidentified species	3.14		9.0
<u>Boehmeria cylindrica</u>	2.84		
<u>Quercus bicolor</u>	2.40		
<u>Campsis radicans</u>	2.24		
<u>Vernonia</u> sp.	1.92		
<u>Parthenocissus quinquefolia</u>	1.64		6.0
<u>Panicum</u> sp.	1.62		
<u>Phacelia strictiflora</u>	1.44		1.0
<u>Rhus radicans</u>	1.40		
<u>Quercus</u> sp.	1.16		
<u>Sporobolus</u> sp.	0.68		4.0
Unidentified grasses	0.48		
<u>Cysopteris fragilis</u>	0.44		
<u>Lactuca</u> sp.	0.32		
<u>Polygonum virginianum</u>	0.24		
<u>Quercus phellos</u>	0.24		
<u>Bromus purgans</u>	0.20		
<u>Ambrosia artemisiifolia</u>	0.16		
<u>Pilea pumila</u>	0.16		
<u>Solanum dulcamara</u>	0.16		
<u>Vitis cinerea</u>	0.16		
<u>Agropyron smithii</u>	0.08		
<u>Galium</u> sp.	0.08		
<u>Menispermum canadense</u>	0.08		
<u>Ulmus rubra</u>	0.06		
<u>Elephantopus carolinianus</u>	0.04		
<u>Oxalis</u> sp.	0.04		
<u>Specularia bicolor</u>	0.04		

Continued

Table A-36. Percent Cover of Ground Level Vegetation at Bottomland  
Site B-2 in Latimer County (Continued, page 2 of 2)

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Helianthus</u> sp.		3.0
<u>Elymus virginicus</u>		2.0
<u>Verbesina</u> sp.		2.0
<u>Gleditsia triacanthos</u>		1.0
<u>Sanicula</u> sp.		1.0
All species	46.7	86.0

Source: Environmental Science and Engineering, Inc., 1980.

Table A-37. Percent Cover of Ground Level Vegetation at Bottomland Site B-3 in LeFlore County

Species	Percent Ground Cover	
	Line Intercept	Point Frequency
<u>Rhus radicans</u>	10.96	4.0
<u>Carex</u> sp.	4.00	18.0
Misc. unidentified species	3.72	19.0
<u>Vernonia</u> sp.	3.68	2.0
<u>Lonicera</u> sp.	1.36	
<u>Ranunculus septentrionalis</u>	1.36	2.0
<u>Cephalanthus occidentalis</u>	1.32	1.0
<u>Ulmus alata</u>	1.04	
<u>Elymus virginica</u>	1.00	1.0
<u>Lonicera semipervens</u>	1.00	5.0
<u>Cyperus strigosus</u>	0.88	2.0
Unidentified grasses	0.88	
<u>Rosa</u> sp.	0.72	
<u>Spigelia marilandica</u>	0.68	
<u>Amorpha fruticosa</u>	0.60	
<u>Fraxinus</u> sp.	0.48	2.0
<u>Trachelospermum difforme</u>	0.40	
<u>Viola missouriensis</u>	0.20	
<u>Polygonum</u> sp.	0.16	
<u>Cynosciadium digitatum</u>	0.12	
<u>Geum vernum</u>	0.12	
<u>Lactuca scariola</u>	0.08	
<u>Agrostis hyemalis</u>		4.0
<u>Juncus tenuis</u>		3.0
<u>Clematis</u> sp.		1.0
<u>Quercus</u> sp.		1.0
<u>Specularia biflora</u>		1.0
All species	34.9	66.0

Source: Environmental Science and Engineering, Inc., 1980.

**APPENDIX B**  
**WILDLIFE ANALYSIS DATA**

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRA

Scientific Name	Common Name	Probable Abundance†	Residence Status‡*	Typical Habitat††								
				PB	OP	OH	B	G	R			
<b>Gaviiformes</b>												
<b>Gaviidae</b>												
<u><i>Gavia immer</i></u>	Common Loon	U	WR					X				
<b>Podicipediformes</b>												
<b>Podicipedidae</b>												
<u><i>Podiceps auritus</i></u>	Horned Grebe	C	WR					X				
<u><i>Podiceps nigricollis</i></u>	Eared Grebe	U	WR					X				
<u><i>Aechmophorus occidentalis</i></u>	Western Grebe	R	T					X				
<u><i>Podilymbus podiceps</i></u>	*Pied-Billed Grebe	C	SR					X				
<b>Pelecaniformes</b>												
<b>Pelecanidae</b>												
<u><i>Pelecanus erythrorhynchos</i></u>	White Pelican	U	T					X				
<b>Phalacrocoracidae</b>												
<u><i>Phalacrocorax auritus</i></u>	Double-Crested Cormorant	C	T					X				
<u><i>Phalacrocorax olivaceus</i></u>	Olivaceous Cormorant	R	SR					X				
<b>Anhingidae</b>												
<u><i>Anhinga anhinga</i></u>	Anhinga	U	SR					X				
<b>Geroniiformes</b>												
<b>Ardeidae</b>												
<u><i>Ardea herodias</i></u>	*Great Blue Heron	C	PR		X	X	X					
<u><i>Butorides virescens</i></u>	*Green Heron	U	SR		X	X	X					
<u><i>Florida caerulea</i></u>	*Little Blue Heron	C	SR		X	X						
<u><i>Bubulcus ibis</i></u>	*Cattle Egret	C	SR				X					

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRA  
(Continued, Page 2 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<u>Casmerodus albus</u>	*Great Egret	C	SR			X	X	X
<u>Egretta thula</u>	Snowy Egret	U	SR			X		X
<u>Hydranassa tricolor</u>	Louisiana Heron	U	SR					
<u>Nycticorax nycticorax</u>	Black-Crowned Night Heron	R	SR			X		X
<u>Nyctanassa violacea</u>	Yellow-Crowned Night Heron	C	SR			X		X
<u>Ixobrychus exilis</u>	Least Bittern	U	SR					X
<u>Botaurus lentiginosus</u>	American Bittern	U	PR			X		X
Ciconiidae								
<u>Mycteria americana</u>	Wood Stork	R	T			X		X
Threskiomithidae								
<u>Plegadis chihi</u>	White-Faced Ibis	R	SR			X	X	X
<u>Eudocimus albus</u>	White Ibis	R	SR			X	X	X
Anseriformes								
Anatidae								
<u>Olor columbianus</u>	Whistling Swan	R	T					X
<u>Branta canadensis</u>	*Canada Goose	C	WR					X
<u>Anser albifrons</u>	White-Fronted Goose	R	WR					X
<u>Chen caerulescens</u>	Snow Goose	C	T					X
<u>Anas platyrhynchos</u>	*Mallard	C	PR			X	X	
<u>Anas rubripes</u>	Black Duck	U	T					X
<u>Anas strepera</u>	Gadwall	C	WR					X
<u>Anas acuta</u>	Pintail	C	WR					X
<u>Anas crecca</u>	Green-Winged Teal	C	WR					X
<u>Anas discors</u>	Blue-Winged Teal	C	T					X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRA  
(Continued, Page 3 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††					
				PB	OP	OH	B	G	R
<u>Anas cygnoides</u>	Northern Shoveler	C	T					X	
<u>Anas americana</u>	American Wigeon	C	T					X	
<u>Aix sponsa</u>	*Wood Duck	U	PR				X	X	
<u>Aythya americana</u>	Redhead	C	T					X	
<u>Aythya collaris</u>	Ring-Necked Duck	C	T					X	
<u>Aythya valisineria</u>	Canvasback	U	T					X	
<u>Aythya marila</u>	Greater Scaup	R	T					X	
<u>Aythya affinis</u>	Lesser Scaup	C	T					X	
<u>Bucephala clangula</u>	Common Goldeneye	U	T					X	
<u>Bucephala albeola</u>	Bufflehead	C	T					X	
<u>Oxyura jamaicensis</u>	Ruddy Duck	C	WR					X	
<u>Lophodytes cucullatus</u>	Hooded Merganser	U	WR					X	
<u>Mergus merganser</u>	Common Merganser	U	WR					X	
<u>Mergus serrator</u>	Red-Breasted Merganser	U	WR					X	
Falconiformes									
Cathartidae									
<u>Cathartes aura</u>	*Turkey Vulture	C	PR	X	X	X	X	X	X
<u>Coragyps atratus</u>	*Black Vulture	C	PR	X	X	X	X	X	X
Accipitriformes									
Accipitridae									
<u>Accipiter striatus</u>	*Sharp-Shinned Hawk	C	WR	X	X	X	X		
<u>Accipiter cooperii</u>	Cooper's Hawk	U	PR	X	X	X	X		
<u>Buteo jamaicensis</u>	*Red-Tailed Hawk	C	PR	X	X	X	X	X	X
<u>Buteo lineatus</u>	*Red-Shouldered Hawk	C	PR			X	X		
<u>Buteo platypterus</u>	*Broad-Winged Hawk	C	SR	X	X	X	X	X	X
<u>Buteo swainsoni</u>	*Swainson's Hawk	U	T						X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FORA  
(Continued, Page 4 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<u>Buteo lagopus</u>	*Rough-Legged Hawk	U	WR				X	
<u>Aquila chrysaetos</u>	Golden Eagle	U	WR				X	X
<u>Haliaeetus leucocephalus</u>	*Bald Eagle	U	WR				X	X
<u>Circus cyaneus</u>	*Marsh Hawk	C	WR				X	
Pandionidae								
<u>Pandion haliaetus</u>	Osprey	R	T				X	
Falconidae								
<u>Falco mexicanus</u>	Prairie Falcon	R	T				X	
<u>Falco peregrinus</u>	Peregrine Falcon	R	T				X	X
<u>Falco columbarius</u>	Merlin	R	T					
<u>Falco sparverius</u>	*American Kestrel	C	PR				X	
Galliformes								
Tetraonidae								
<u>Tympanuchus cupido</u>	Greater Prairie Chicken	R	PR	X			X	
Phasianidae								
<u>Colinus virginianus</u>	*Bobwhite	C	PR	X			X	
Meleagrididae								
<u>Meleagris gallopavo</u>	*Turkey	C	PR	X	X	X	X	X
Rallidae								
<u>Rallus elegans</u>	King Rail	U	SR				X	
<u>Rallus limicola</u>	Virginia Rail	U	SR				X	

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRA  
(Continued, Page 5 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††					
				PB	OP	OH	B	G	R
<u>Porzana carolina</u>	Sora Rail	U	SR					X	
<u>Lateralus jamaicensis</u>	Black Rail	R	T					X	
<u>Porphyrrula martinica</u>	Purple Gallinule	R	SR					X	
<u>Gallinula chloropus</u>	Common Gallinule	R	SR					X	
<u>Fulica americana</u>	*American Coot	C	WR					X	
 Charadriiformes									
Charadriidae									
<u>Charadrius semipalmatus</u>	Semipalmated Plover	U	T					X	
<u>Charadrius melanotos</u>	Piping Plover	U	T					X	
<u>Charadrius alexandrinus</u>	Snowy Plover	U	T					X	
<u>Charadrius vociferus</u>	*Killdeer	C	PR					X	X
<u>Pluvialis dominica</u>	American Golden Plover	U	T					X	
<u>Pluvialis squatarola</u>	Black-Bellied Plover	U	T					X	
 Scolopacidae									
<u>Philohela minor</u>	American Woodcock	C	SR					X	
<u>Capella gallinago</u>	Common Snipe	U	WR					X	X
<u>Numenius phaeopus</u>	Whimbrel	R	T					X	
<u>Bartramia longicauda</u>	*Upland Sandpiper	C	T					X	
<u>Actitis macularia</u>	Spotted Sandpiper	U	T					X	
<u>Tringa solitaria</u>	Solitary Sandpiper	U	T					X	
<u>Tringa melanoleuca</u>	Greater Yellow Legs	C	T					X	
<u>Tringa flavipes</u>	Lesser Yellow Legs	C	T					X	
<u>Catoptrophorus semipalmatus</u>	Willet	C	T					X	
<u>Calidris melanotos</u>	Pectoral Sandpiper	U	T					X	
<u>Calidris fuscicollis</u>	White-Rumped Sandpiper	U	T					X	

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FORA  
(Continued, Page 6 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<u>Calidris bairdii</u>	Baird's Sandpiper	U	T					X
<u>Calidris minutilla</u>	Least Sandpiper	C	T					X
<u>Calidris alpina</u>	Dunlin	U	T					X
<u>Calidris pusilla</u>	Semipalmated Sandpiper	C	T					X
<u>Calidris mauri</u>	Western Sandpiper	C	T					X
<u>Calidris alba</u>	Sanderling	U	T					X
<u>Limnodromus scolopaceus</u>	Long-Billed Dowitcher	U	T					X
<u>Micropalama himantopus</u>	Stilt Sandpiper	R	T					X
<u>Tryngites subruficollis</u>	Buff-Breasted Sandpiper	R	T					X
<u>Limosa fedoa</u>	Marbled Godwit	R	T					X
<u>Limosa haemastica</u>	Hudsonian Godwit	R	T					X
Recurvirostridae								
<u>Recurvirostra americana</u>	American Avocet	R	T					X
Phalaropodidae								
<u>Stegnocephalus tricolor</u>	Wilson's Phalarope	U	T					X
Laridae								
<u>Larus argentatus</u>	Herring Gull	U	WR					X
<u>Larus delawarensis</u>	Ring-Billed Gull	C	WR					X
<u>Larus atricilla</u>	Laughing Gull	U	WR					X
<u>Larus pipixcan</u>	Franklin's Gull	C	WR					X
<u>Larus philadelphicus</u>	Bonaparte's Gull	U	WR					X
<u>Sterna forsteri</u>	Forster's Tern	C	WR					X
<u>Sterna hirundo</u>	Gannet	U	WR					X
<u>Sterna paradisaea</u>	Gull-billed Tern	U	SR					X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRRA  
(Continued, Page 2 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††					
				PB	OP	OH	B	G	R
<u><i>Hydroprogne caspia</i></u>	Caspian Tern	U	WR					X	
<u><i>Chlidonias niger</i></u>	Black Tern	C	WR					X	
<b>Columbiformes</b>									
<b>Columbidae</b>									
<u><i>Colomba livia</i></u>	Rock Dove	C	PR						
<u><i>Zenaidura macroura</i></u>	Mourning Dove	C	PR	X	X	X	X	X	X
<b>Cuculiformes</b>									
<b>Cuculidae</b>									
<u><i>Coccyzus americanus</i></u>	Yellow-Billed Cuckoo	C	SR	X	X	X	X	X	X
<u><i>Coccyzus erythrophthalmus</i></u>	Black-Billed Cuckoo	U	SR	X	X	X	X	X	X
<u><i>Geococcyx californianus</i></u>	Roadrunner	C	PR	X	X	X	X	X	X
<b>Strigiformes</b>									
<b>Tytonidae</b>									
<u><i>Tyto alba</i></u>	Barn Owl	R	PR	X	X	X	X	X	X
<b>Strigidae</b>									
<u><i>Otus asio</i></u>	Screech Owl	U	PR	X	X	X	X	X	X
<u><i>Bubo virginianus</i></u>	Great Horned Owl	C	PR	X	X	X	X	X	X
<u><i>Nyctea scandiaca</i></u>	Snowy Owl	R	T						X
<u><i>Strix varia</i></u>	Boreal Owl	C	PR	X	X	X	X		
<u><i>Asio otus</i></u>	Long-eared Owl	U	PR	X	X	X	X		
<u><i>Asio flammeus</i></u>	Short-eared Owl	C	WR	X	X	X			X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FGRA  
(Continued, Page 8 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††						
				PB	OP	OH	B	G	R	
<b>Caprimulgiformes</b>										
<b>Caprimulgidae</b>										
<i>Caprimulgus carolinensis</i>	*Chuck-Will's-Widow	C					X	X		
<i>Caprimulgus vociferus</i>	Whip-Poor-Will	U						X		
<i>Chordeiles minor</i>	*Common Nighthawk	C			X	X	X	X	X	
<b>Apodiformes</b>										
<b>Apodidae</b>										
<i>Chaetura pelasgica</i>	Chimney Swift	C			X	X	X	X	X	
<b>Trochilidae</b>										
<i>Archilochus colubris</i>	*Ruby-throated Hummingbird	C	SR		X	X	X	X	X	
<b>Coraciiformes</b>										
<b>Alcedinidae</b>										
<i>Megaceryle alcyon</i>	*Belted Kingfisher	C	PR				X		X	
<b>Piciiformes</b>										
<b>Picidae</b>										
<i>Colaptes auratus</i>	*Common Flicker	C	PR		X	X	X	X	X	
<i>Dryocopus pileatus</i>	*Pileated Woodpecker	C	PR		X	X	X	X		
<i>Centurus carolinus</i>	*Red-Bellied Woodpecker	C	PR		X	X	X	X	X	
<i>Melanerpes erythrocephalus</i>	*Red-Headed Woodpecker	C	PR				X	X		
<i>Sphyrapicus varius</i>	*Yellow-Bellied Sapsucker	C	WR				X	X		
<i>Dendrocopos villosus</i>	*Hairy Woodpecker	C	PR		X	X	X	X		
<i>Dendrocopos pubescens</i>	*Downy Woodpecker	C	PR		X	X	X	X	X	
<i>Dendrocopos borealis</i>	*Red-Cockaded Woodpecker	R	PR				X			

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FGRA  
(Continued, Page 9 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††							
				PB	OP	OH	B	G			
<b>Passeriformes</b>											
Tyrannidae											
<i>Tyrannus tyrannus</i>	*Eastern Kingbird	C	SR	X			X				
<i>Tyrannus verticalis</i>	Western Kingbird	U	SR								
<i>Muscivora forficata</i>	*Scissor-Tailed Flycatcher	C	SR					X			
<i>Myiarchus crinitus</i>	*Great-Crested Flycatcher	C	SR	X	X	X					
<i>Sayornis phoebe</i> ‡	*Eastern Phoebe‡	C	SR		X	X					
<i>Empidonax flaviventris</i>	Yellow-Bellied Flycatcher	U	T		X	X					
<i>Empidonax virescens</i>	*Acadian Flycatcher	C	SR		X	X					
<i>Empidonax traillii</i>	Willow Flycatcher	U	T		X	X	X	X			
<i>Empidonax alnorum</i>	Alder Flycatcher	U	T		X	X	X	X			
<i>Empidonax minimus</i>	*Least Flycatcher	U	SR	X	X	X	X	X			
<i>Contopus virens</i>	*Eastern Wood Pewee	C	SR	X	X	X	X	X			
<i>Nuttallornis borealis</i>	Olive-Sided Flycatcher	R	T	X	X	X	X	X			
<i>Pyrocephalus rubinus</i>	Vermilion Flycatcher	R	T								
Alaudidae											
<i>Eremophila alpestris</i>	Horned Lark	C	PR					X			
Hirundinidae											
<i>Iridoprocne bicolor</i>	Tree Swallow	U	T					X			
<i>Riparia riparia</i>	Bank Swallow	U	T					X			
<i>Stelgidopteryx ruficollis</i>	*Rough-Winged Swallow	C	SR					X			
<i>Hirundo rustica</i>	Barn Swallow	C	SR					X			
<i>Petrochelidon pyrrhonota</i>	*Cliff Swallow	C	SR					X			
<i>Progne subis</i>	Purple Martin	C	SR					X			

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the RORA  
(Continued, Page 10 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††					
				PB	OP	OH	B	G	R
<b>Corvidae</b>									
<u><i>Cyanocitta cristata</i></u>	*Blue Jay	C	PR		X	X	X	X	X
<u><i>Corvus brachyrhynchos</i></u>	*Common Crow	C	PR		X	X	X	X	X
<u><i>Corvus ossifragus</i></u>	Fish Crow	R	PR						X
<b>Paridae</b>									
<u><i>Parus carolinensis</i></u>	*Carolina Chickadee	C	PR		X	X	X	X	X
<u><i>Parus bicolor</i></u>	*Tufted Titmouse	C	PR		X	X	X	X	X
<b>Sittidae</b>									
<u><i>Sitta carolinensis</i></u>	*White-Breasted Nuthatch	C	PR		X	X	X	X	X
<u><i>Sitta canadensis</i></u>	*Red-Breasted Nuthatch	U	WR			X			
<u><i>Sitta pusilla</i></u>	Brown-Headed Nuthatch	R	PR			X			
<b>Certhiidae</b>									
<u><i>Certhia familiaris</i></u>	*Brown Creeper				X	X	X	X	X
<b>Troglodytidae</b>									
<u><i>Troglodytes aedon</i></u>	*House Wren	C	SR		X	X	X	X	X
<u><i>Troglodytes troglodytes</i></u>	*Winter Wren	U	WR					X	
<u><i>Thryomanes bewickii</i></u>	Bewick's Wren	C	PR		X	X	X	X	X
<u><i>Thryothorus ludovicianus</i></u>	*Carolina Wren	C	PR		X	X	X	X	X
<u><i>Telmatodytes palustris</i></u>	Long-Billed Marsh Wren	U	T						X
<u><i>Cistothorus platensis</i></u>	*Short-Billed Marsh Wren	U	T						X
<u><i>Salpinctes obsoletus</i></u>	Rock Wren	R	T		X	X	X		

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FQRA  
(Continued, Page 11 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<b>Mimidae</b>								
<u><i>Mimus polyglottos</i></u>	*Mockingbird	C	PR	X	X	X	X	X
<u><i>Dumetella carolinensis</i></u>	*Gray Catbird	C	SR			X	X	
<u><i>Toxostoma rufum</i></u>	*Brown Thrasher	C	PR	X	X	X	X	X
<b>Turdidae</b>								
<u><i>Turdus migratorius</i></u>	*Robin	C	PR	X	X	X	X	X
<u><i>Hylocichla mustelina</i></u>	*Wood Thrush	C	SR	X	X	X	X	
<u><i>Catharus guttatus</i></u>	Hermit Thrush	C	T		X	X	X	
<u><i>Catharus ustulatus</i></u>	*Swainson's Thrush	C	T		X	X	X	
<u><i>Catharus minimus</i></u>	Gray-Cheeked Thrush	U	T		X	X	X	
<u><i>Catharus fuscascens</i></u>	*Veery	U	T		X	X	X	
<u><i>Sialia sialis</i></u>	*Eastern Bluebird	C	PR	X	X	X	X	X
<b>Sylviidae</b>								
<u><i>Poioptila caerulea</i></u>	*Blue-Gray Gnatcatcher	C	SR	X	X	X	X	X
<u><i>Regulus satrapa</i></u>	*Golden-Crowned Kinglet	C	WR		X	X		
<u><i>Regulus calendula</i></u>	*Ruby-Crowned Kinglet	C	WR		X	X	X	X
<b>Motacillidae</b>								
<u><i>Anthus spinoletta</i></u>	Water Pipit	U	T					X
<u><i>Anthus spragueii</i></u>	Sprague's Pipit	U	T					X
<b>Bombycillidae</b>								
<u><i>Bombycilla cedrorum</i></u>	*Cedar Waxwing	C	WR		X	X	X	X
<b>Laniidae</b>								
<u><i>Lanius excubitor</i></u>	Northern Shrike	R	WR					X
<u><i>Lanius ludovicianus</i></u>	*Loggerhead Shrike	C	PR					X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the RGRA  
(Continued, Page 12 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<b>Sturnidae</b>								
<u><i>Sturnus vulgaris</i></u>	*Starling	C	PR	X	X	X	X	X
<b>Vireonidae</b>								
<u><i>Vireo griseus</i></u>	*White-Eyed Vireo	C	SR		X	X		
<u><i>Vireo bellii</i></u>	Bell's Vireo	U						X
<u><i>Vireo flavifrons</i></u>	Yellow-Throated Vireo	U	SR		X	X		
<u><i>Vireo solitarius</i></u>	*Solitary Vireo	U	T		X	X		
<u><i>Vireo olivaceus</i></u>	*Red-Eyed Vireo	C	SR		X	X		
<u><i>Vireo philadelphicus</i></u>	Philadelphia Vireo	U	T		X	X		
<u><i>Vireo gilvus</i></u>	Warbling Vireo	C	SR		X	X		
<b>Parulidae</b>								
<u><i>Mniotilla varia</i></u>	*Black-and-White Warbler	C	SR	X	X	X	X	X
<u><i>Protonotaria citrea</i></u>	*Prothonotary Warbler	C	SR					X
<u><i>Limnothlypis swainsonii</i></u>	Swainson's Warbler	U	SR		X	X	X	
<u><i>Helminthorus vermivorus</i></u>	Worm-Eating Warbler	U	SR	X	X	X		
<u><i>Vermivora chrysoptera</i></u>	Golden-Winged Warbler	U	T	X	X	X		
<u><i>Vermivora pinus</i></u>	Blue-Winged Warbler	U	SR					
<u><i>Vermivora peregrina</i></u>	Tennessee Warbler	U	T	X	X	X	X	
<u><i>Vermivora celata</i></u>	Orange-Crowned Warbler	U	T	X	X	X	X	X
<u><i>Vermivora ruficapilla</i></u>	Nashville Warbler	U	T	X	X	X	X	X
<u><i>Parula americana</i></u>	*Northern Parula Warbler	C	SR	X	X	X	X	X
<u><i>Dendroica petechia</i></u>	Yellow Warbler	C	SR					X
<u><i>Dendroica magnolia</i></u>	Magnolia Warbler	U	T	X	X	X	X	X
<u><i>Dendroica coronata</i></u>	*Yellow-Rumped Warbler	C	WR	X	X	X	X	X
<u><i>Dendroica virens</i></u>	Black-Throated Green Warbler	U	T	X	X	X	X	X
<u><i>Dendroica cerulea</i></u>	Cerulean Warbler	C	SR	X	X	X	X	X
<u><i>Dendroica fusca</i></u>	Blackburnian Warbler	U	T	X	X	X	X	X
<u><i>Dendroica dominica</i></u>	*Yellow-Throated Warbler	U	T	X	X	X	X	X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FORA  
 (Continued, Page 13 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<u>Dendroica pensylvanica</u>	Chestnut-Sided Warbler	U	T	X	X	X	X	
<u>Dendroica castanea</u>	Bay-Breasted Warbler	U	T	X	X	X	X	
<u>Dendroica striata</u>	Blackpoll Warbler	U	T	X	X	X	X	
<u>Dendroica pinus</u>	*Pine Warbler	C	PR	X	X			
<u>Dendroica discolor</u>	*Prairie Warbler	C	SR	X	X	X	X	X
<u>Dendroica palmarum</u>	Palm Warbler	U	T	X	X	X	X	X
<u>Seiurus aurocapillus</u>	*Ovenbird	C	SR	X	X	X	X	
<u>Seiurus novboracensis</u>	Northern Waterthrush	C	T					X
<u>Seiurus motacilla</u>	Louisiana Waterthrush	C	SR					X
<u>Oporornis formosus</u>	*Kentucky Warbler	U	SR	X	X	X	X	
<u>Oporornis agilis</u>	Connecticut Warbler	U	T	X	X	X	X	
<u>Oporornis philadelphica</u>	Mourning Warbler	U	T	X	X	X	X	
<u>Geothlypis trichas</u>	*Common Yellowthroat	C	SR					X
<u>Icteria virens</u>	*Yellow-Breasted Chat	C	SR	X	X	X	X	X
<u>Wilsonia citrina</u>	*Hooded Warbler	C	SR	X	X	X	X	
<u>Wilsonia pusilla</u>	Wilson's Warbler	C	T					X
<u>Wilsonia canadensis</u>	Canada Warbler	U	T				X	X
<u>Setophaga ruticilla</u>	American Redstart	C	SR	X	X	X	X	
 Ploceidae								
<u>Passer domesticus</u>	*House Sparrow	C	PR	X	X	X	X	X
 Icteridae								
<u>Dolichonyx oryzivorus</u>	Bobolink	U	T					X
<u>Sturnella magna</u>	*Eastern Meadowlark	C	PR					X
<u>Sturnella neglecta</u>	Western Meadowlark	U	WR					X
<u>Xanthocephalus xanthocephalus</u>	Yellow-Headed Blackbird	U	T				X	X
<u>Agelaius phoeniceus</u>	*Red-Winged Blackbird	C	PR				X	X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FORA  
 (Continued, Page 14 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††					
				PB	OP	OH	B	G	R
<u>Icterus spurius</u>	*Orchard Oriole	C	SR		X	X	X	X	X
<u>Icterus galbula</u>	*Northern Oriole	C	SR		X	X	X	X	X
<u>Euphagus carolinus</u>	Rusty Blackbird	U	WR						X
<u>Euphagus cyanocephalus</u>	*Brewer's Blackbird	C	WR						X
<u>Cassidix mexicanus</u>	Great-Tailed Grackle	U	SR						X
<u>Quiscalus quiscula</u>	*Common Grackle	C	PR		X	X	X	X	X
<u>Molothrus ater</u>	*Brown-Headed Cowbird	C	PR		X	X	X	X	X
Thraupidae									
<u>Piranga olivacea</u>	Scarlet Tanager	C	SR			X	X		
<u>Piranga rubra</u>	*Summer Tanager	C	SR			X	X		
Fringillidae									
<u>Cardinalis cardinalis</u>	*Cardinal	C	PR		X	X	X	X	
<u>Pheucticus ludovicianus</u>	*Rose-Breasted Grosbeak	U	T						X
<u>Guiraca caerulea</u>	*Blue Grosbeak	C	SR		X	X	X		
<u>Passerina cyanea</u>	*Indigo Bunting	C	SR		X	X	X	X	X
<u>Passerina ciris</u>	*Painted Bunting	C	SR		X	X	X	X	X
<u>Spiza americana</u>	*Dickcissel	C	SR						X
<u>Hesperiphona vespertina</u>	Evening Grosbeak	R	WR		X	X	X	X	
<u>Carpodacus purpureus</u>	Purple Finch	C	WR		X	X	X	X	
<u>Spinus pinus</u>	Pine Siskin	C	WR		X	X	X	X	
<u>Spinus tristis</u>	*American Goldfinch	C	PR		X	X	X	X	X
<u>Loxia curvirostra</u>	*Red Crossbill	C	WR						
<u>Loxia leucoptera</u>	White-Winged Crossbill	R	T				X		
<u>Pipilo erythrrophthalmus</u>	*Rufous-Sided Towhee	C	WR					X	X
<u>Passerculus sandwichensis</u>	*Savannah Sparrow	C	WR						X
<u>Ammodramus savannarum</u>	*Grasshopper Sparrow	C	SR						X

Table B-1. Abundance, Residence Status, and Typical Habitat of Bird Species Occurring in the FCRA  
(Continued, Page 15 of 15)

Scientific Name	Common Name	Probable Abundance†	Residence Status**	Typical Habitat††				
				PB	OP	OH	B	G
<i>Ammodramus henslowii</i>	Henslow's Sparrow	R	T				X	
<i>Ammodramus caudacuta</i>	Sharp-Tailed Sparrow	R	T				X	
<i>Ammodramus leconteii</i>	Le Conte's Sparrow	U	WR				X	
<i>Pooecetes gramineus</i>	Vesper Sparrow	C	WR				X	
<i>Chondestes grammacus</i>	*Lark Sparrow	C	SR				X	
<i>Aimophila ruficeps</i>	Rufous-Crowned Sparrow	U	PR	X	X	X		X
<i>Aimophila aestivalis</i>	Bachman's Sparrow	R	PR					
<i>Junco hyemalis</i>	*Dark-Eyed Junco	C	WR	X	X	X	X	X
<i>Spizella arborea</i>	Tree Sparrow	U	WR	X	X	X	X	X
<i>Spizella passerina</i>	Chipping Sparrow	C	SR				X	
<i>Spizella pallida</i>	Clay-Colored Sparrow	U	T				X	
<i>Spizella pusilla</i>	*Field Sparrow	C	PR				X	
<i>Zonotrichia querula</i>	*Harris's Sparrow	C	WR	X	X	X	X	X
<i>Zonotrichia leucophrys</i>	White-Crowned Sparrow	C	WR	X	X	X	X	X
<i>Zonotrichia albicollis</i>	*White-Throated Sparrow	C	WR	X	X	X	X	X
<i>Passerella iliaca</i>	Fox Sparrow	U	WR	X	X	X	X	X
<i>Melospiza lincolni</i>	Lincoln's Sparrow	U	WR	X	X	X	X	X
<i>Melospiza georgiana</i>	Swamp Sparrow	U	WR				X	
<i>Melospiza melodia</i>	*Song Sparrow	C	WR				X	X
<i>Calcarius mccownii</i>	McCown's Longspur	R	T				X	
<i>Calcarius lapponicus</i>	Lapland Longspur	C	WR				X	
<i>Calcarius pictus</i>	Smith's Longspur	U	WR				X	
<i>Calcarius ornatus</i>	Chestnut-Collared Longspur	R	WR				X	

\*Observed by ESE in the FCRA.

†C—Common, U—Uncommon, R—Rare (see Nomenclature and Definitions, Text Section 2.1.3).

\*\*PR—Permanent resident, SR—Summer resident, WR—Winter resident, T—Transient.

††PB—Post Oak-Blackjack Oak, OP—Oak Pine, OH—Oak Hickory, B—Bottomland, G—Grassland, R—Reservoirs.

Source: Carter 1967.

Sutton 1967.

Sutton n.d.

Table B-2. Probable Abundance and Typical Habitat of Mammals Occurring in the FCRAs

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††				
			G	B	OH	OP	PB
<b>Marsupialia</b>							
<b>Didelphidae</b>							
<u><i>Didelphis virginiana</i></u>	*Opossum	C	X	X	X	X	X
<b>Insectivora</b>							
<b>Soricidae</b>							
<u><i>Blarina brevicauda</i></u>	Short-tailed shrew	C		X	X	X	X
<u><i>Notiosorex crawfordi</i></u>	Desert shrew	R	X	X	X	X	X
<u><i>Cryptotis parva</i></u>	*Least shrew	C	X				
<b>Talpidae</b>							
<u><i>Scalopus aquaticus</i></u>	†Eastern mole	C	X	X	X		
<b>Chiroptera</b>							
<b>Vespertilionidae</b>							
<u><i>Myotis lucifugus</i></u>	Little brown myotis	R	X	X	X	X	X
<u><i>M. griseescens</i></u>	Gray myotis	R	X	X	X	X	X
<u><i>M. keenii</i></u>	Keen's myotis	R	X	X	X	X	X
<u><i>M. sodalis</i></u>	Indiana myotis	R	X	X	X	X	X
<u><i>M. leibii</i></u>	Small-footed myotis	R		X	X	X	X
<u><i>Lasiurus noctivagans</i></u>	Silver-haired bat	R		X	X	X	X
<u><i>Pipistrellus subflavus</i></u>	Eastern pipistrel	C	X	X	X	X	X
<u><i>Eptesicus fuscus</i></u>	Big brown bat		X	X	X	X	X
<u><i>Lasiurus borealis</i></u>	Red bat	C		X	X	X	X
<u><i>L. cinereus</i></u>	Hoary bat	R		X	X	X	X
<u><i>Nycticeius humeralis</i></u>	Evening bat	C		X	X	X	X
<u><i>Plecotus rafinesquii</i></u>	Rafinesque's big-eared bat	R	X	X	X	X	X
<u><i>P. townsendii</i></u>	Townsend's big-eared bat	R	X	X	X	X	X
<b>Molossidae</b>							
<u><i>Tadarida brasiliensis</i></u>	Mexican free-tail bat	R	X	X	X	X	X
<b>Edentata</b>							
<b>Dasylopidae</b>							
<u><i>Dasyurus novemcinctus</i></u>	*Nine-banded armadillo	C	X	X	X	X	X
<b>Lagomorpha</b>							
<b>Leporidae</b>							
<u><i>Lepus californicus</i></u>	*Black-tailed jack rabbit	C		X			
<u><i>Sylvilagus floridanus</i></u>	*Eastern cottontail	C	X	X	X	X	X
<u><i>S. aquaticus</i></u>	*Swamp rabbit	U		X			

Table B-2. Probable Abundance and Typical Habitat of Mammals Occurring in the FCRA  
(Continued, page 2 of 3)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††						
			G	B	OH	OP	PB		
<b>Rodentia</b>									
<i>Sciuridae</i>									
<u><i>Spermophilus tridecemlineatus</i></u>	Thirteen-lined ground squirrel	C		X					
<u><i>Tamias striatus</i></u>	*Eastern chipmunk	C		X	X	X	X		
<u><i>Sciurus carolinensis</i></u>	*Eastern gray squirrel	C		X	X				
<u><i>S. niger</i></u>	*Eastern fox squirrel	C		X	X	X	X		
<u><i>Glaucomys volans</i></u>	Southern flying squirrel	C		X	X	X	X		
<i>Geomyidae</i>									
<u><i>Geomys bursarius</i></u>	†Plains pocket gopher	C		X					
<i>Heteromyidae</i>									
<u><i>Perognathus hispidus</i></u>	Hispid pocket mouse	U		X					
<i>Castoridae</i>									
<u><i>Castor canadensis</i></u>	†Beaver	C		X					
<i>Cricetidae</i>									
<u><i>Reithrodontomys humilis</i></u>	Eastern harvest mouse	C		X					
<u><i>R. montanus</i></u>	Plains harvest mouse	U		X					
<u><i>R. fulvescens</i></u>	*Fulvous harvest mouse	C		X					
<u><i>Peromyscus maniculatus</i></u>	*Deer mouse	C		X	X	X	X		
<u><i>P. leucopus</i></u>	*White-footed mouse	C		X	X	X	X		
<u><i>P. gossypinus</i></u>	Cotton mouse	C		X	X	X			
<u><i>P. boylii</i></u>	Brush mouse	C			X	X	X		
<u><i>Ochrotomys nuttalli</i></u>	Golden mouse	U		X	X	X	X		
<u><i>Neotoma floridana</i></u>	*Eastern woodrat	C			X	X	X		
<u><i>Sigmodon hispidus</i></u>	*Cotton rat	C		X	X	X	X		
<u><i>Oryzomys palustris</i></u>	Marsh rice rat	C		X					
<u><i>Microtus pinetorum</i></u>	Woodland vole	U		X	X	X	X		
<u><i>Ondatra zibethicus</i></u>	*Muskrat	C		X	X				
<i>Miridae</i>									
<u><i>Rattus rattus</i></u>	Black rat	U		X	X	X	X		
<u><i>R. norvegicus</i></u>	Norway rat	C		X	X	X	X		
<u><i>Mus musculus</i></u>	*House mouse	C		X	X	X	X		
<i>Capromyidae</i>									
<u><i>Myocastor coypus</i></u>	Nutria	U		X	X				
<i>Carnivora</i>									
<i>Ursidae</i>									
<u><i>Ursus americanus</i></u>	Black bear	R		X	X	X	X		

Table B-2. Probable Abundance and Typical Habitat of Mammals Occurring in the FCRA  
(Continued, page 3 of 3)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††				
			G	B	OH	OP	PB
<b>Carnivora (continued)</b>							
<u>Procyonidae</u>							
<u>  Procyon lotor</u>	†Raccoon	C	X	X	X	X	X
<u>Mustelidae</u>							
<u>  Mustela frenata</u>	Longtail weasel	R	X	X	X	X	X
<u>  M. vison</u>	†Mink	C		X			
<u>  Lutra canadensis</u>	River otter	R		X			
<u>  Spilogale putorius</u>	Eastern spotted skunk	U	X		X	X	X
<u>  Mephitis mephitis</u>	*Striped skunk	C	X	X	X	X	X
<u>Canidae</u>							
<u>  Canis latrans</u>	*Coyote	C	X	X	X	X	X
<u>  Vulpes fulva</u>	†Red fox	U	X		X	X	X
<u>  Urocyon cinereoargenteus</u>	†Gray fox	C		X	X	X	X
<u>Felidae</u>							
<u>  Felis concolor</u>	Cougar	R	X	X	X	X	X
<u>  Lynx rufus</u>	†Bobcat	U	X	X	X	X	X
<b>Artiodactyla</b>							
<u>Cervidae</u>							
<u>  Cervus elaphus</u>	Elk	R		X	X	X	X
<u>  Odocoileus virginianus</u>	*White-tail deer	C	X	X	X	X	X

\* Individual observed by ESE in the FCRA.

† Sign observed by ESE in the FCRA.

\*\*C—Common, U—Uncommon, R—Rare (see Nomenclature and Definitions, Text Section 2.1.3).

††PB—Post Oak-Blackjack Oak, OP—Oak-Pine, OH—Oak-Hickory, B—Bottomland, G—Grassland.

Sources: Blair, 1936; Hall and Kelson, 1959; Burt and Grossenheimer, 1977.  
Environmental Science and Engineering, Inc., 1980.

Table B-3. Probable Abundance and Typical Habitat of Amphibians and Reptiles in the FCRA

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††			
			PB	OP	OH	B
<b>Testudines</b>						
<i>Chelydridae</i>						
<i>Chelydra serpentina</i>	Common snapping turtle	C				
<i>Macroclemys temminckii</i>	Alligator snapping turtle	R				
<i>Kinosternidae</i>						
<i>Sternotherus odoratus</i>	*†Stinkpot	C				
<i>Kinosternon subrubrum hippocrepis</i>	†Mississippi mud turtle	C				X
<i>Emydidae</i>						
<i>Terrapene carolina triunguis</i>	*Three-toed box turtle	C	X	X	X	
<i>Terrapene ornata ornata</i>	Ornate box turtle	C				X
<i>Graptemys kohni</i>	†Mississippi map turtle	U				
<i>G. pseudogeographica</i>	†False map turtle	U				
<i>Chrysemys floridana hoyi</i>	*†Missouri slider	C				
<i>Chrysemys scripta elegans</i>	*†Red-eared turtle	C				
<i>Trionychidae</i>						
<i>Trionyx muticus</i>	*†Smooth softshell	C				
<i>Trionyx spiniferus hartwegi</i>	†Western spiny softshell	C				
<b>Squamata</b>						
<i>Iguanidae</i>						
<i>Crotaphytus collaris</i>	Collared lizard	C	X	X	X	X
<i>Sceloporus undulatus hyacinthinus</i>	*Northern fence lizard	C	X	X	X	
<i>Phrynosoma cornutum</i>	Texas horned lizard	U				X
<i>Tiliidae</i>						
<i>Cnemidophorus sexlineatus viridis</i>	Prairie racerunner	C	X	X	X	X

Table B-3. Probable Abundance and Typical Habitat of Amphibians and Reptiles in the FCRA  
(Continued, page 2 of 5)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††				
			PB	OP	OH	B	G
<b>Scincidae</b>							
<i>Eumeces anthracinus</i>	Coal skink	U		X	X	X	
<i>E. fasciatus</i>	*Five-lined skink	C				X	X
<i>E. laticeps</i>	Broad-headed skink	C		X		X	X
<i>E. septentrionalis obtusirostris</i>	*Southern prairie skink	C		X			X
<i>Leiolopisma laterale</i>	Ground skink	C		X	X	X	X
<b>Anguidae</b>							
<i>Ophisaurus a. attenuatus</i>	Western slender glass lizard	R					X
<b>Colubridae</b>							
<i>Natrix erythrogaster transversa</i>	Blotched water snake	C					X
<i>N. grahami</i>	Graham's water snake	U					X
<i>N. r. rhombifera</i>	Diamondback water snake	C					X
<i>N. rigida</i>	Glossy water snake	U					X
<i>N. sipedon pleuralis</i>	*Midland water snake	C					X
<i>Storeria dekayi</i>	Brown snake	C		X	X	X	
<i>S. occipitomaculata</i>	Red-bellied snake	U		X	X	X	
<i>Thamnophis sirtalis parietalis</i>	Red-sided garter snake	C		X	X	X	X
<i>T. p. proximus</i>	Western ribbon snake	C					X
<i>Virginia striatula</i>	Rough earth snake	U		X	X	X	
<i>V. valeriae elegans</i>	Western earth snake	U		X	X	X	
<i>Heterodon platyrhinos</i>	*Eastern hognose snake	C					X
<i>Diadophis punctatus arnyi</i>	Prairie ringneck snake	C		X	X	X	
<i>Carphophis amoenus vermis</i>	Western worm snake	C		X	X	X	X
<i>Coluber constrictor flaviventris</i>	*Eastern yellow-bellied racer	C		X	X		X
<i>Masticophis f. flagellum</i>	Eastern coachwhip	C		X	X	X	
<i>Ophiodrys aestivus</i>	Rough green snake	C		X	X	X	X
<i>Elaphe guttata emoryi</i>	Great Plains rat snake	U		X	X	X	X
<i>E. obsoleta obsoleta</i>	*Black rat snake	C		X	X	X	X

Table B-3. Probable Abundance and Typical Habitat of Amphibians and Reptiles in the FCRA  
(Continued, page 3 of 5)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††				
			PB	OP	OH	B	G
<u>Pituophis melanoleucus sayi</u>	Bullsnake	R					X
<u>Lampropeltis c. calligaster</u>	Prairie king snake	C	X	X			X
<u>L. getulus holbrooki</u>	Speckled king snake	C	X	X	X	X	X
<u>L. triangulum syspila</u>	Red milk snake	U					X
<u>Cemophora coccinea</u>	Scarlet snake	R	X	X	X		
<u>Sonora episcopa</u>	Ground snake	U	X	X			X
<u>Tantilla gracilis</u>	Flat-headed snake	C	X	X	X		X
Viperidae							
<u>Agkistrodon contortrix mokasen</u>	*Northern copperhead	C	X	X	X		
<u>A. piscivorus leucostoma</u>	Western cottonmouth	C					X
<u>Sistrurus miliarius streckeri</u>	Western pygmy rattlesnake	U				X	X
<u>Crotalus atrox</u>	Western diamondback rattlesnake	C	X	X			X
<u>C. h. horridus</u>	*Timber rattlesnake	C	X	X	X	X	
Caudata							
Cryptobranchidae							
<u>Necturus maculosus louisianensis</u>	†Louisiana waterdog	C					
Sirenidae							
<u>Siren intermedia nettingi</u>	†Western lesser siren	U					
Ambystomatidae							
<u>Ambystoma annulatum</u>	Ringed salamander	R				X	X
<u>A. maculatum</u>	Spotted salamander	C				X	X
<u>A. opacum</u>	Marbled salamander	C		X	X	X	X
<u>A. talpoideum</u>	Mole salamander	C					X
<u>A. texanum</u>	Smallmouth salamander	C					X
<u>A. tigrinum tigrinum</u>	Eastern tiger salamander	R				X	X

Table B-3. Probable Abundance and Typical Habitat of Amphibians and Reptiles in the FCRA  
(Continued, page 4 of 5)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††			
			PB	OP	OH	B
<b>Salamandridae</b>						
<u><i>Notophthalmus viridescens</i></u>						
<u><i>louisianensis</i></u>	Central newt	C				X
<b>Plethodontidae</b>						
<u><i>Desmognathus brimleyorum</i></u>	Ouachita dusky salamander	C				X
<u><i>Plethodon glutinosus glutinosus</i></u>	Slimy salamander	C			X	X
<u><i>P. serratus</i></u>	Southern redback salamander	C	X	X	X	X
<u><i>Hemidactylum scutatum</i></u>	Four-toed salamander	R				X
<u><i>Eurycea longicauda melanopleura</i></u>	Dark-sided salamander	R				
<u><i>E. multiplicata multiplicata</i></u>	Many-ribbed salamander	C				X
<b>Anura</b>						
<b>Pelobatidae</b>						
<u><i>Scaphiopus holbrookii hurteri</i></u>	Hurter's spadefoot	C	X		X	X
<b>Bufo</b>						
<u><i>Bufo americanus charlesmithi</i></u>	Dwarf American toad	C		X	X	X
<u><i>B. debilis debilis</i></u>	Eastern green toad	R	X			X
<u><i>B. punctatus</i></u>	Red-spotted toad	R	X			X
<u><i>B. woodhousei fowleri</i></u>	Fowler's toad	C			X	X
<u><i>B. woodhousei woodhousei</i></u>	Woodhouse's toad	C		X	X	X
<b>Hylidae</b>						
<u><i>Acris crepitans blanchardi</i></u>	*Blanchard's cricket frog	C				X
<u><i>Hyla chrysocelis</i></u>	*Southern gray treefrog	C				X
<u><i>H. cinerea</i></u>	Green treefrog	C				X
<u><i>H. crucifer crucifer</i></u>	Northern spring peeper	C			X	X
<u><i>H. versicolor</i></u>	*Eastern gray treefrog	C				X
<u><i>Pseudacris streckeri streckeri</i></u>	Strecker's chorus frog	R			X	X
<u><i>P. triseriata feriarum</i></u>	*Upland chorus frog	C			X	X
<u><i>P. triseriata triseriata</i></u>	Western chorus frog	C			X	X

Table B-3. Probable Abundance and Typical Habitat of Amphibians and Reptiles in the FCRA  
 (Continued, page 5 of 5)

Scientific Name	Common Name	Probable Abundance**	Typical Habitat††				
			PB	OP	OH	B	G
<b>Microhylidae</b>							
<u>Gastrophryne carolinensis</u>	Eastern narrow-mouthed toad	C			X	X	X
<u>G. olivacea</u>	Great Plains narrow-mouthed toad	R	X	X	X	X	X
<b>Ranidae</b>							
<u>Rana areolata areolata</u>	Southern crawfish frog	C			X	X	
<u>R. catesbeiana</u>	*†Bullfrog	C			X		
<u>R. clamitans clamitans</u>	Bronze frog	C			X		
<u>R. clamitans melanota</u>	†Green frog	C			X	X	
<u>R. palustris</u>	*Pickerel frog	C			X	X	
<u>R. pipiens sphenocephala</u>	*Southern leopard frog	C			X	X	

\* Observed by Environmental Science and Engineering, Inc. in the FCRA.

† Aquatic species.

\*\*C--Common, U--Uncommon, R--Rare (See Nomenclature and Definitions, Text Section 2.1.3).

††PB--Post Oak-Blackjack Oak, OP--Oak-Pine, OH--Oak-Hickory, B--Bottomland,

G--Grassland

Sources: Black 1977, Conant 1975, Webb 1970.

Environmental Science and Engineering, Inc., 1980.

**APPENDIX C**  
**FISH COLLECTION DATA**

Table 1. Number of Fish Species and Individuals Collected in Streams in the F2A Study Area

CONTINUUM

Table 1. Number of Fish Species and Individuals Collected in Streams in the FGR Study Area (Continued, page 2 of 2)

PRACTICAL CONSIDERATIONS 1000

Table C-2. Fish Species Known to Occur in the Primary and Secondary Streams Studied in the Southeastern Oklahoma FCRA (Including Poteau River)

Common Name	Scientific Name	Relative Abundance†
Chestnut lamprey	<u>Ichthyomyzon castaneus</u>	O
Southern brook lamprey	<u>I. gagei</u>	P
Paddlefish	<u>Polyodon spathula</u>	R
Shovelnose sturgeon	<u>Scaphirhynchus platorynchus</u>	R
Spotted gar	<u>Lepisosteus oculatus</u>	O
Longnose gar	<u>L. osseus</u>	O
Shortnose gar	<u>L. platostomus</u>	O
Alligator gar	<u>L. spatula</u>	R
Bowfin	<u>Amia calva</u>	R
American eel	<u>Anguilla rostrata</u>	R
Skipjack herring	<u>Alosa chrysocloris</u>	R
Alabama shad	<u>A. alabamae</u>	R
*Gizzard shad	<u>Dorosoma cepedianum</u>	C
Threadfin shad	<u>D. petenense</u>	R
Goldeye	<u>Hiodon alosoides</u>	R
Mooneye	<u>H. tergisus</u>	R
Grass pickerel	<u>Esox americanus</u>	O
Carp	<u>Cyprinus carpio</u>	C
*Central stoneroller	<u>Campostoma anomalum</u>	A
*Golden shiner	<u>Notemigonus crysoleucas</u>	C
Silver chub	<u>Hybopsis storeriana</u>	R
Cypress minnow	<u>Hybognathus hayi</u>	R
Central silvery minnow	<u>H. nuchalis</u>	C
Plains minnow	<u>H. placitus</u>	C
Pallid shiner	<u>Notropis amnis</u>	R
*Emerald shiner	<u>N. atherinoides</u>	A
Blackspot shiner	<u>N. atrocaudilis</u>	A
Red River shiner	<u>N. bairdi</u>	R
River shiner	<u>N. bleekii</u>	R
*Bigeye shiner	<u>N. boops</u>	A
Ghost shiner	<u>N. buchanani</u>	A
*Pugnose minnow	<u>N. emiliae</u>	O
Ribbon shiner	<u>N. fumeus</u>	O
*Red shiner	<u>N. lutrensis</u>	A
Kiamichi shiner	<u>N. orteburgi</u>	O

Continued

Table C-2. Fish Species Known to Occur in the Primary and Secondary Streams Studied in the Southeastern Oklahoma FCRA (Including Poteau River)  
(Continued, page 2 of 4)

Common Name	Scientific Name	Relative Abundance†
*Colorless shiner	<u>N. perpallidus</u>	R
Chub shiner	<u>N. potteri</u>	O
Rosyface shiner	<u>N. rubellus</u>	A
Silverband shiner	<u>N. shumardi</u>	R
Sand shiner	<u>N. stramineus</u>	A
*Redfin shiner	<u>N. umbratilis</u>	A
Blacktail shiner	<u>N. venustus</u>	A
*Mimic shiner	<u>N. volucellus</u>	O
*Steelcolor shiner	<u>N. whipplei</u>	A
*Bluntnose minnow	<u>Pimephales notatus</u>	A
Fathead minnow	<u>P. promelas</u>	O
Slim minnow	<u>P. tenellus</u>	C
*Bullhead minnow	<u>P. vigilax</u>	A
*Suckermouth minnow	<u>Phenacobius mirabilis</u>	O
Southern red-bellied dace	<u>Phoxinus erythrogaster</u>	R
Catostomidae		
River carpsucker	<u>Carpio carpio</u>	R
Highfin carpsucker	<u>C. velifer</u>	R
Blue sucker	<u>Cyclopterus elongatus</u>	O
Lake chubsucker	<u>Erimyzon oblongus</u>	R
Bigmouth buffalo	<u>Ictiobus bubalus</u>	O
*Smallmouth buffalo	<u>I. cyprinellus</u>	O
Black buffalo	<u>I. niger</u>	C
*Spotted sucker	<u>Minytrema melanops</u>	O
Northern hog sucker	<u>Hypentelium nigricans</u>	P
River redhorse	<u>Moxostoma carinatum</u>	R
Black redhorse	<u>M. duquesni</u>	R
*Golden redhorse	<u>M. erythrurum</u>	O
Shorthead redhorse	<u>M. macrolepidotum</u>	R
Ictaluridae		
Blue catfish	<u>Ictalurus furcatus</u>	R
*Black bullhead	<u>I. melas</u>	A
*Yellow bullhead	<u>I. natalis</u>	C
*Channel catfish	<u>I. punctatus</u>	A
Slender madtom	<u>Noturus exilis</u>	C

Table C-2. Fish Species Known to Occur in the Primary and Secondary Streams Studied in the Southeastern Oklahoma FCRA (Including Poteau River)  
(Continued, page 3 of 4)

Common Name	Scientific Name	Relative Abundance <sup>t</sup>
Stonecat	<u>N. flavus</u>	R
Tadpole madtom	<u>N. gyrinus</u>	R
Brindled madtom	<u>N. miurus</u>	R
Freckled madtom	<u>N. nocturnus</u>	A
Flathead catfish	<u>Pylodictus olivaris</u>	C
	Cyprinodontidae	
*Blackstripe topminnow	<u>Fundulus notatus</u>	C
Plains killifish	<u>F. Kansae</u>	C
Starhead topminnow	<u>F. notti</u>	R
*Blackspotted topminnow	<u>F. olivaceus</u>	A
	Poeciliidae	
*Mosquitofish	<u>Gambusia affinis</u>	A
	Aphredoderidae	
Pirate perch	<u>Aphredoderus sayanus</u>	O
	Atherinidae	
*Brook silverside	<u>Labidesthes sicculus</u>	A
Mississippi silverside	<u>Menidia audens</u>	O
	Percichthyidae	
White bass	<u>Morone chrysops</u>	R
Striped bass	<u>M. saxatilis</u>	R
	Centrarchidae	
*Green sunfish	<u>Lepomis cyanellus</u>	A
*Warmouth	<u>L. gulosus</u>	O
*Orangespotted sunfish	<u>L. humilis</u>	A
*Bluegill	<u>L. macrochirus</u>	A
*Longear sunfish	<u>L. megalotis</u>	A
*Redear sunfish	<u>L. microlophus</u>	C
Smallmouth bass	<u>Micropterus dolomieu</u>	D
*Spotted bass	<u>M. punctulatus</u>	C
*Largemouth bass	<u>M. salmoides</u>	C
*White crappie	<u>Pomoxis annularis</u>	C
Black crappie	<u>P. nigromaculatus</u>	R
	Percidae	
Scale sand darter	<u>Ammocrypta vivax</u>	R
Greenside darter	<u>Etheostoma blennioides</u>	R
Bluntnose darter	<u>E. chlorosomum</u>	O
Fantail darter	<u>E. flabellare</u>	R
Slough darter	<u>E. gracile</u>	C
Harlequin darter	<u>E. histrio</u>	C
Least darter	<u>E. microperca</u>	R

Continued

Table C-2. Fish Species Known to Occur in the Primary and Secondary Streams Studied in the Southeastern Oklahoma FCRA (Including Poteau River)  
(Continued, page 4 of 4)

Common Name	Scientific Name	Relative Abundance†
Johnny darter	<u>E. nigrum</u>	R
Cypress darter	<u>E. proeliare</u>	C
Orangebelly darter	<u>E. radiosum</u>	A
*Orangethroat darter	<u>E. spectabile</u>	C
Redfin darter	<u>E. whipplei</u>	R
Banded darter	<u>E. zonale</u>	R
*Log perch	<u>Percina caprodes</u>	O
Channel darter	<u>P. copei</u>	R
*Blackside darter	<u>P. maculata</u>	R
Longnose darter	<u>P. nasuta</u>	C
*Slenderhead darter	<u>P. phoxocephala</u>	C
*Dusky darter	<u>P. sciara</u>	C
River darter	<u>P. shumardi</u>	R
Walleye	<u>Stizostedion canadense</u>	R
Freshwater drum	<u>Aplochitonotus grunniens</u>	O

\* Species collected by ESE in 1979 study of FCRA.

† Abundance: A--Abundant

C--Common

O--Occasional

R--Rare

Sources: J. Pigg, Personal data, 1977 and 1979.

Oklahoma Cooperative Wildlife and Fisheries Research Unit, 1978.

Oklahoma State Department of Health, 1977 and 1978.

Oklahoma Department of Pollution Control, 1978.

**APPENDIX D**  
**BENTHIC INVERTEBRATES**  
**COLLECTION DATA**

Table D-1. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Blue-Jones, Brazil, Brushy, and Buck)

Taxa	Blue-Jones				Brazil				Brushy				Buck			
	sp	su	f	w	sp	su	f	w	sp	su	f	w	sp	su	f	w
Oligochaeta	96	14	3	288		37	3	36	2	52	37	25		63		
Hirudinea						2				3						
Isopoda																
<u>Asellus</u>	1		1	2			1			2						
Amphipoda																
<u>Gammarus</u>	1		6		1				2	1			97	22		
Decapoda																
Crayfish																
Plecoptera												19				
<u>Acronemuria</u>																
<u>Allocapnia</u>								64								
<u>Isoperla</u>	7															
<u>Nemoura</u>																
<u>Neoperla</u>					7											
<u>Peltoperla</u>																
<u>Perlesta placida</u>	17				5				2			26				
<u>Taneopteryx</u>																
<u>Taenionema</u>																
Ephemeroptera																
<u>Baetis</u>											3					
<u>Caenis</u>	3	95	3		8	1			12	1		11		2		
<u>Hexagenia</u>						1										
<u>Isonychia</u>																
<u>Paraleptophlebia</u>					35				6							
<u>Stenacron</u>									4			1				
<u>Stenonema</u>	8				1		1									

Continued

Table D-1. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Blue-Jones, Brazil, Brushy, and Buck) (Continued, page 2 of 4)

Taxa	Blue-Jones				Brazil				Brushy				Buck			
	sp	su	f	w	sp	su	f	w	sp	su	f	w	sp	su	f	w
Odonata																
<u>Aeshna</u>				1												
<u>Argia</u>													3	2		
<u>Coenagrion</u>																
<u>Lestes</u>																
<u>Ophiogomphus</u>																
<u>Somatochila</u>				2												
<u>Nasiaeshna</u>					1											
<u>Progomphus</u>					1											
<u>Hagenius brevistylus</u>				1												
Megaloptera																
<u>Corydalus cornutus</u>									16	1						
<u>Sialis</u>				1												
Trichoptera																
<u>Cheumatopsyche</u>								7		18	81					
<u>Glossosoma</u>									1							
<u>Hydropsyche</u>									6		4					
<u>Leuctrichia</u>				2						70						
<u>Leptocerus</u>										48						
<u>Phryganea</u>					2					40						
<u>Potamia</u>											1	4				
<u>Rhyacophila</u>																
Coleoptera																
<u>Helichus</u>										3						
<u>Cyprion</u>																
<u>Dineutus</u>									2	1						
<u>Dytiscus</u>										1						
<u>Hydrochus</u>																
<u>Hydroporus</u>																
<u>Stenelmis</u>				8				1								
<u>Tropisternus</u>								6			4					
<u>T. natator</u>												1				
<u>Gyrinus</u>																

Table D-1. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FGRA Study Area (Blue-Jones, Brazil, Brushy, and Buck) (Continued, page 3 of 4)

Taxa	Blue-Jones				Brazil				Brushy				Buck			
	sp	su	f	w	sp	su	f	w	sp	su	f	w	sp	su	f	w
<u>Hemiptera</u>																
<u>Lethocerus americanus</u>																1
<u>Notonecta</u>																
<u>Sigara</u>																
<u>Diptera</u>																
<u>Bezzia</u>		6				1	6	6	10	12	11					1
<u>Calopsectra</u>																
<u>Chironomus</u>	36	45	6	2	14				18	2	7		1	51	2	65
<u>Chrysops</u>			1								9					
<u>Cryptochironomus</u>	14	21				10			8							
<u>Dicrotendipes</u>		6														1
<u>Limnophora</u>										2	3					
<u>Microtendipes</u>	6	6								3						
<u>Pentaneura</u>	2	9				7	10			5	8		6	1	3	42
<u>Polypedilum</u>																
<u>Procladius</u>																
<u>Pseudochironomus</u>									2							
<u>Psychoda</u>	6															1
<u>Simulium</u>									1	1	8		3			
<u>Tabanidae</u>																
<u>Tipula</u>			1		1											
<u>pupae</u>	8	6	1		7		1	1	6	2		1				33
<u>Odontomyia</u>																
<u>Hydropsyche</u>																
<u>Simulium pupae</u>																
<u>Gastropoda</u>																
<u>Gyrinus</u>						1										
<u>Helisoma</u>					31		1									
<u>Lymnaea</u>						1										2
<u>Physa</u>							1									
<u>Auricularia</u>																
<u>Amnicola</u>																2

Continued

Table D-2. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Cache, Fourche Maline, Morris, and Muddy Boggy) (Continued, page 3 of 4)

Taxa	Cache				Fourche Maline				Morris				Muddy Boggy			
	sp	su	f	w	sp	su	f	w	sp	su	f	w	sp	su	f	w
<b>Hemiptera</b>																
<u>Lethocerus americanus</u>																
<u>Notonecta</u>																6
<u>Sigara</u>																
<b>Diptera</b>																
<u>Bezzia</u>																
<u>Calopsectra</u>	2				3				6							
<u>Chironomus</u>	21				16				6							
<u>Chrysops</u>									8							
<u>Cryptochironomus</u>									4							
<u>Dicrotendipes</u>									5							
<u>Limnophora</u>									79							
<u>Microtendipes</u>																
<u>Pentaneura</u>	1				13				5							
<u>Polypedilum</u>									22							
<u>Procladius</u>						12			5							
<u>Pseudochironomus</u>						8			3							
<u>Psychoda</u>	2															
<u>Simulium</u>	5					8			8							
<u>Tabanus</u>		1							1							
<u>Tipula</u>							1			23						
<u>Tipula</u> pupae	3					6			9				2		1	3
<u>Odontomyia</u>																
<u>Hydromyza</u>		1														
<u>Simulium</u> pupae													1		27	
<b>Gastropoda</b>																
<u>Gyrinus</u>													4			
<u>Helisoma</u>		1														
<u>Lymnaea</u>																
<u>Physa</u>	8								7				9			
<u>Auricularia</u>																
<u>Amnicola</u>									3				1			

Continued

Table D-2. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Cache, Fourche Maline, Morris, and Muddy Boggy) (Continued, page 4 of 4)

Taxa	Cache				Fourche Maline				Morris				Muddy Boggy			
	sp	su	f	w	sp	su	f	w	sp	su	f	w	sp	su	f	w
<b>Pelecypoda</b>																
<u>Anodontata</u>									1							
<u>Truncilla</u>																
<u>Sphaerium</u>	5	23				9	8	3						1		
<u>Anodontoides</u>																
<u>Psidium</u>									1							
<u>Ptycobranchus</u>									1							
NUMBER INDIVIDUALS	88	253	118	63	55	121	101	280	94	165	252	297	108	36	48	187
NUMBER TAXA	12	14	15	6	11	12	16	8	9	13	15	15	6	10	6	4
DIVERSITY	2.75	2.56	2.97	2.10	2.82	2.86	3.22	2.11	2.83	2.65	3.08	2.69	2.49	2.25	2.32	1.65
EQUITABILITY	0.75	0.57	0.73	0.92	0.91	0.83	0.81	0.75	1.11	0.69	0.80	0.60	1.33	0.60	1.17	1.00

Source: Environmental Science and Engineering, Inc., 1980.

Table D-3. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Mule, Peaceable, Taloka)

Taxa	Mule				Peaceable				Taloka			
	sp	su	f	w	sp	su	f	w	sp	su	f	w
Oligochaeta	2		28				22				44	
Hirudinea							1					
Isopoda												
<u>Asellus</u>												
Amphipoda												
<u>Gammarus</u>					2		6	1				
Decapoda												
<u>Crayfish</u>												
Plecoptera												
<u>Acronemuria</u>												
<u>Allocapnia</u>					3							3
<u>Isoperla</u>						6						2
<u>Nemoura</u>					1							
<u>Neoperla</u>												
<u>Peltoperla</u>						4						
<u>Perlesta placida</u>			2			4						34
<u>Taneopteryx</u>												
<u>Taenionema</u>												
Ephemeroptera												
<u>Baetis</u>												
<u>Caenis</u>			2	5	10	4	2	7	4	1	30	6
<u>Hexagenia</u>						4					6	6
<u>Isonychia</u>						6						19
<u>Paraleptophlebia</u>												
<u>Stenacron</u>												
<u>Stenonema</u>												
					5							

D-6

Continued

Table D-3. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Mule, Peaceable, Taloka) (Continued, page 2 of 4)

Taxa	Mule				Peaceable				Taloka			
	sp	su	f	w	sp	su	f	w	sp	su	f	w
Odonata												
<u>Aeshna</u>	3											
<u>Argia</u>							1	1				
<u>Gomphus</u>		1										
<u>Lestes</u>											5	
<u>Ophiogomphus</u>											1	
<u>Somatochlora</u>		2					1					
<u>Nasiaeshna</u>												
<u>Progomphus</u>												
<u>Hagenius brevistylus</u>												
Megaloptera												
<u>Corydalus cornutus</u>	1	13				1	1			1	29	10
<u>Sialis</u>												
Trichoptera												
<u>Chemostopsyche</u>	1	14				11	185	15		36	56	100
<u>Glossosoma</u>												
<u>Hydropsyche</u>	8									27		18
<u>Leucotrichia</u>							11				8	12
<u>Leptocerus</u>		11					17	17				
<u>Phryganea</u>												
<u>Potamia</u>												
<u>Rhyacophila</u>								154				
Coleoptera												
<u>Helichus</u>					2							
<u>Cyprion</u>												
<u>Dineutus</u>					8	1				2		
<u>Dytiscus</u>												
<u>Hydrachus</u>												
<u>Hydroporus</u>												
<u>Stenelmis</u>												
<u>Tropisternus</u>												
<u>T. natator</u>												
<u>Gyrinus</u>												

Continued

Table D-3. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Mule, Peaceable, Taloka) (Continued, page 3 of 4)

Taxa	Mule				Peaceable				Taloka			
	sp	su	f	w	sp	su	f	w	sp	su	f	w
<b>Hemiptera</b>												
<u><i>Lethocerus americanus</i></u>												
<u><i>Notonecta</i></u>												
<u><i>Sigara</i></u>							1			13		2
<b>Diptera</b>												
<u><i>Bezzia</i></u>			7	6	4	21	2	5	1	11		
<u><i>Calopsectra</i></u>												
<u><i>Chironomus</i></u>	19	54	22	65	4	24	4	18	18	8	10	169
<u><i>Glyptosoma</i></u>					2	8				20		12
<u><i>Cryptochironomus</i></u>												
<u><i>Dicrotendipes</i></u>	1		7									
<u><i>Limnophora</i></u>												
<u><i>Microtendipes</i></u>							8		2	26		
<u><i>Pentaneura</i></u>	24	10	21			27	22	13		19	75	24
<u><i>Polypedilum</i></u>						12						
<u><i>Procladius</i></u>												
<u><i>Pseudochironomus</i></u>	2			14								21
<u><i>Psychoda</i></u>									1	1		
<u><i>Simulium</i></u>		1			3			1		12	64	18
<u><i>Tabanas</i></u>												
<u><i>Tipula</i></u>								2				
<u><i>pupae</i></u>	12	3			7		1		1	8	1	18
<u><i>Odontomyia</i></u>												
<u><i>Hydromyza</i></u>												
<u><i>Simulium</i> pupae</u>									3			
<b>Gastropoda</b>												
<u><i>Cyraulus</i></u>												
<u><i>Helisoma</i></u>												
<u><i>Lymnaea</i></u>												
<u><i>Physa</i></u>					1					16		4
<u><i>Auricularia</i></u>												
<u><i>Amnicola</i></u>												

Table D-3. Species Number, Diversity, and Equitability Values of Benthic Samples Collected in the Southeastern Oklahoma FCRA Study Area (Mule, Peaceable, and Taloka) (Continued, page 4 of 4)

Taxa	Mule				Peaceable				Taloka			
	sp	su	f	w	sp	su	f	w	sp	su	f	w
<u>Pelecypoda</u>												
<u>Anodonta</u>												
<u>Truncilla</u>					1							
<u>Sphaerium</u>					1		17	11				6
<u>Anodontoides</u>												
<u>Psidium</u>												
<u>Ptycobranchus</u>												
NUMBER INDIVIDUALS	77	60	92	89	147	482	102	51	159	282	279	322
NUMBER TAXA	12	9	4	9	16	18	14	8	13	15	13	11
DIVERSITY	2.67	2.64	1.52	2.55	2.71	2.55	3.05	1.95	2.67	3.10	2.74	2.33
EQUITABILITY	0.75	1.00	1.00	0.89	0.56	0.44	0.86	0.63	0.69	0.80	0.69	0.64

Source: Environmental Science and Engineering, Inc., 1980.

Table D-4. Additional Benthic Invertebrate Taxa Known to Occur in Streams of Southeastern Oklahoma

Platyhelminthes	(Odonata, Cont'd.)	(Coleoptera, Cont'd.)	(Diptera, Cont'd.)
<u>Dugesia</u>	<u>Hetaerina</u>	<u>Halipus</u>	<u>Scatella</u>
Isopoda	<u>Ehiallagma</u>	<u>Pelonomus</u>	<u>Stratiomyia</u>
<u>Lirceus</u>	<u>Dythemis</u>	<u>Tachystolterum</u>	<u>Palpomyia</u>
Amphipoda	<u>Dromogomphus</u>	<u>Ridessus</u>	<u>Ablabesmyia</u>
<u>Ilyalella</u>	<u>Anomalagrion</u>	<u>Heochares</u>	<u>Procladius</u>
<u>Allocrangonyx</u>	<u>Calopteryx</u>	<u>Peltodytes</u>	<u>Tanypus</u>
Conchostraca (clam shrimps)	<u>Libellula</u>	<u>Cyretes</u>	<u>Endochironomus</u>
<u>Lyncheus</u>	<u>Nehalennia</u>	<u>Heleophorus</u>	<u>Clyphotendipes</u>
Arachnida	<u>Basiliaeschna</u>	<u>Hydrochara</u>	<u>Harnischia</u>
<u>Sperchonopsis</u>	Trichoptera	<u>Cymbolodtya</u>	<u>Tauteboroniella</u>
Hydrachna	Macronaum	<u>Bonacia</u>	<u>Limnochironomus</u>
<u>Limnesia</u>	Psychomia	Hemiptera	<u>Parachironomus</u>
Plecoptera	Heleophycshe	<u>Gerris</u>	<u>Tribelos</u>
<u>Brachyptera</u>	<u>Asthenophylax</u>	<u>Rhagovelia</u>	<u>Rheotanytarsus</u>
Ephemeroptera	<u>Heleopsycshe</u>	<u>Microvelia</u>	<u>Tanytarsus</u>
<u>Choroterpes</u>	<u>Oectus</u>	<u>Mesovella</u>	<u>Microspectra</u>
<u>Tricorythodes</u>	<u>Onimarra</u>	<u>Plea</u>	<u>Psectrocladius</u>
<u>Baetodes</u>	<u>Ochtrorichia</u>	<u>Pentacora</u>	<u>Paralauteboroniella</u>
<u>Pseudocleon</u>	<u>Mayatrichia</u>	<u>Macroanthus</u>	<u>Stenochironomus</u>
<u>Centroptilum</u>	<u>Cymnellus</u>	<u>Rheumatobates</u>	<u>Cricotopus</u>
<u>Dactylobactis</u>	<u>Polycentropus</u>	<u>Treptobates</u>	<u>Kiefferulus</u>
<u>Cloeon</u>	<u>Psychomyiid</u>	<u>Hesperocorixa</u>	<u>Corynoneura</u>
<u>Siphlonurus</u>	<u>Oxyethira</u>	<u>Ranphocorixa</u>	<u>Paracladopelma</u>
<u>Aneletus</u>	<u>Pseudocleon</u>	<u>Belostoma</u>	
<u>Ephemerella</u>	<u>Pycnopsyche</u>	Diptera	
Odonata	Coleoptera	Atherix	
<u>Macromia</u>	Macronychus	Euparyphus	
<u>Boyeria</u>	Pronoternus	Elmia	
<u>Tetragoneuria</u>	Berosus	Conchapelopia	
<u>Macrothemis</u>	Dubiraphia	Trissocladius	
	Microcylloepus	Eukiefferellia	
	Introcitus	Paracladius	
	Hydrovatus	Eurothocladius	
	Hydatilicus	Stictochironomus	
	Agabus	Wiedemannia	

\* Includes some invertebrates which are not totally benthic in all aquatic stages (e.g., Coleoptera, Hemiptera).

Sources: Hornuff, 1957; Oklahoma Department of Pollution Control, 208, 1978; Oklahoma Department of Health, 1977, 1978; Reisen, 1975.

**APPENDIX E**  
**HABITAT ACREAGE DATA**

Table E-1. Estimated Acreage of Nine Land-Use and Habitat Types in the FCRA

Topographic Map Name	Grassland	Bottomland	Oak-Hickory	Oak-Pine	Post Oak-Black Jack			Row Crops	Sum	Percent Error
					Oak	Black Jack	Oak			
Adamson	1,214	292	223	846	1,322	65	247	0	0	4,210 2.2
Bates	2,588	291	518	1,433	0	0	0	146	0	4,976 7
Blocker	3,396	244	1,626	18	1,945	0	216	0	0	7,745 0.8
Bokoshe	2,818	521	1,925	559	1,419	0	0	234	0	7,746 1.7
Centrahoma	1,944	94	48	0	395	0	12	0	0	2,493 0.1
Coalgate	10,989	1,192	501	21	1,954	488	0	37	77	16,520 2.3
Coalgate S.E.	8,541	612	1,880	1,138	7,503	0	0	0	0	19,674 0.5
Crowder	395	21	20	24	123	0	24	0	0	608 0
Cowen	999	99	177	1,234	457	14	0	0	0	2,981 1.5
Hackett	5,138	555	162	0	81	0	0	24	0	5,959 0.5
Hartford	360	85	214	272	26	0	0	0	0	1,013 0.5
Hartshorne	2,154	561	406	0	511	370	74	0	0	4,077 -1.4
Hartshorne S.W.	6,052	860	721	0	1,175	0	0	0	0	8,808 2.7
Haywood	1,045	162	251	0	120	0	0	0	0	1,578 -2.8
Heavener	14,904	2,328	1,610	4,635	2,037	184	243	242	291	26,474 1.2
Kiowa	4,880	356	715	0	1,064	33	47	0	0	7,095 1.2
Krebs	9,933	797	2,406	0	1,958	793	115	0	7	16,009 -0.7
Lafayette	3,814	118	979	37	258	0	0	65	0	5,247 .34
Leflore	1,090	453	715	3,718	2,566	193	0	0	0	8,734 2.4
Lehigh	12,006	4,305	860	0	950	0	0	143	254	18,518 3.2
Lequire	1,014	71	65	128	272	0	0	0	0	1,550 1.7
Limestone Gap	478	111	16	0	38	0	88	0	0	731 1.2
McAlester	8,616	632	1,002	0	1,943	343	60	0	7	12,605 2.7
McAlester S.W.	2,536	142	17	0	116	0	0	0	422	3,232 0.3
McCurtaim	7,128	562	1,535	474	1,053	377	43	1,477	0	12,650 .55
Muldrow, S.W.	1,545	1,022	177	71	34	0	105	0	235	3,190 2.6
Olney	5,230	260	247	0	88	0	0	0	75	5,899 -0.5

Continued

Table E-1. Estimated Acreage of Nine Land-Use and Habitat Types in the FCRA (Continued, page 2 of 2)

Topographic Map Name	Grassland	Bottomland	Oak-Hickory	Oak-Pine	Post Oak-Black Jack Oak					Row Crops	Sum	Percent Error
						Urban	Water	Mined				
Panama	12,316	1,564	1,373	0	450	0	0	199	0	15,901	4.2	
Pittsburg	2,481	141	221	0	0	13	0	0	0	2,855	0	
Potato Peaks	498	19	380	630	150	0	0	0	0	1,677	1.6	
Poteau East	1,023	98	43	0	48	82	0	0	0	1,294	1.0	
Poteau West	1,994	31	2,747	8,633	2,596	474	0	0	0	16,476	3.1	
Red Oak	12,296	1,755	2,977	8,563	3,617	417	388	0	0	30,013	2.6	
Robert S. Kerr Dam	1,703	84	64	0	0	0	0	97	0	1,947	0	
San Bois	298	0	71	71	0	0	121	0	0	560	1.5	
Savanna	10,493	1,120	2,475	0	1,371	508	0	0	26	15,992	-1.6	
Spiro	9,376	4,240	920	0	421	0	176	209	209	15,549	1.7	
Stigler East	10,089	466	658	0	783	0	17	129	95	12,238	1.0	
Stigler N.E.	2,274	142	16	0	102	0	0	0	0	2,534	0	
Stigler West	8,461	470	1,119	0	773	0	0	92	72	10,988	.41	
Summerfield	6,487	207	417	2,503	979	0	20	0	0	10,613	-0.1	
Vian	111	0	0	0	0	0	0	0	0	111	0	
Wardville	54	31	45	0	219	0	0	0	0	349	2.0	
Wilburton	3,363	1,345	1,078	2,537	759	1,118	0	186	0	10,386	1.6	

Source: Environmental Science and Engineering, Inc., 1980.

Note: A discussion of habitat acreage in the FCRA is found in Section 3.1.1.

Table E-2. Habitat Interspersion Indices per Square Mile in the FCRA

USGS Quadrat Measured	Square Miles*	Interspersion Index Per Square Mile	
		Range	Mean
Adamson	22	0-16	12.3
Bates	14	0-17	9.2
Blocker	20	0-12	6.7
Bokoshe	42	0-26	10.4
Centrahoma	9	0-11	8.5
Coalgate	45	0-17	7.5
Coalgate S.E.	49	0-17	10.0
Crowder	3	1-5	12.0
Gowen	13	0-15	10.0
Hackett	18	0-17	7.3
Hartford	4	1-9	15.3
Hartshorne	13	0-18	13.0
Hartshorne S.W.	33	0-15	8.9
Haywood	8	0-18	11.7
Heavener	70	0-11	6.1
Kiowa	30	0-13	8.0
Krebs	41	0-17	11.1
Lafayette	18	0-13	7.9
Leflore	24	0-16	11.9
Lehigh	41	0-21	9.6
Lequire	6	0-7	8.8
Limestone Gap	5	1-12	13.7
McAlester	37	0-17	8.7
McAlester S.W.	19	0-6	4.5
McCurtain	32	0-24	12.4
Muldrow S.W.	9	0-17	12.2
Olney	15	0-10	5.4
Panama	48	0-19	9.2
Pittsburgh	13	0-8	3.5
Potato Peaks	7	0-19	13.9
Poteau East	7	0-7	7.6
Poteau West	40	0-11	5.5
Red Oak	62	0-16	8.0
Robert S. Kerr Dam	6	0-10	7.3
San Bois	5	0-3	8.0
Savanna	42	0-16	8.8
Spiro	41	0-16	9.8
Stigler East	25	0-13	5.9
Stigler N.E.	8	0-8	4.2

Continued

Table E-2. Habitat Interspersion Indices per Square Mile in the FCRA  
(Continued, page 2 of 2)

USGS Quadrat Measured	Square Miles*	Interspersion Index Per Square Mile	
		Range	Mean
Stigler West	27	0-19	8.3
Summerfield	26	0-14	8.4
Vian	1	0	0
Wardville	3	0-7	14.67
Wilburton	28	0-24	12.34

\*Approximation of FCRA in this quadrant. See habitat maps or appendix for more accurate acreage.

Source: Environmental Science and Engineering, Inc., 1980.

Note: Index is based on square mile sections or fractions of sections within the FCRA. Method of measuring habitat interspersion is discussed under Interspersion Index in Section 2.1.3.

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